CRPL-F83

IONOSPHERIC DATA

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U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
WASHINGTON, D. C.

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1949, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Fifth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Stockholm, 1948, and given in detail on pages 2 to 10 of the report CRPL-F53, "Ionospheric Data," issued January 1949.

For symbols and terminology used with data prior to January 1949, see report IRPL-C61, "Report of International Radio Propagation Conference, Washington, 17 April to 5 May, 1944," previous issues of the F series, in particular, IRPL-F5, CRPL-F24, F33, F50, and report CRPL-7-1, "Preliminary Instructions for Obtaining and Reducing Manual Ionospheric Records."

Following the recommendations of the Washington (1944) and Stockholm (1948) conferences, beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

In addition to the conventions for the determination of medians given in Appendix 5 of Document No. 293 E of the Stockholm conference, which are listed on pages 9 and 10 of CRPL-F53, the following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given on pages 2-9 of CRPL-F53 (Appendixes 1-4 of Document No. 293 E referred to above).

a. For all ionospheric characteristics:

Values missing because of A, B, C, F, L, M, N, Q, R, S, or T (see terminology referred to above) are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of D are counted as equal to or greater than the upper limit of the recorder.

Values missing because of G are counted:
1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic. This practice represents a change from that listed in issues previous to CRPL-F78.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency count of the recorder.

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

a. Differences in scaling records when spread echoes are present.

b. Omission of values when foF2 is less than or equal to foF1, leading to erroneously high values of monthly averages or median values.

c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

Ordinarily, a blank space in the fEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number						
	1951	1950	1949	1948	1947	1946	1945
December		86	108	114	126	85	38
November		87	112	115	124	83	36
October		90	114	116	119	81	23
September		91	115	117	121	79	22
August		96	111	123	122	77	20
July		101	108	125	116	73	
June	63	103	108	129	112	67	
May	68	102	108	130	109	67	
April	74	101	109	133	107	62	
March	78	103	111	133	105	51	
February	82	103	113	133	90	46	
January	85	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 60 and figures 1 to 120 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:
- Brisbane, Australia
- Canberra, Australia
- Hobart, Tasmania

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geology and Geophysics:
- Watheroo, Western Australia

Defence Research Board, Canada:
- Baker Lake, Canada
- Churchill, Canada
- Fort Chimo, Canada
- Ottawa, Canada
- Portage la Prairie, Canada
- Prince Rupert, Canada
- Resolute Bay, Canada
- St. John's, Newfoundland
- Winnipeg, Canada

French Ministry of Naval Armaments (Section for Scientific Research):
- Dakar, French West Africa
- Fribourg, Germany

National Laboratory of Radio-Electricity (French Ionospheric Bureau):
- Domont, France

Icelandic Post and Telegraph Administration:
- Reykjavik, Iceland

Radio Regulatory Commission, Tokyo, Japan:
- Akita, Japan
- Tokyo (Kokubunji), Japan
- Wakkanai, Japan
- Yamagawa, Japan

Norwegian Defense Research Establishment, Kjeller per Lillestrom, Norway:
- Oslo, Norway
- Tromso, Norway

Post, Telephone and Telegraph Administration, Berne, Switzerland:
- Schwarzenburg, Switzerland

United States Army Signal Corps:
- Adak, Alaska
- Okinawa I.

National Bureau of Standards (Central Radio Propagation Laboratory):
- Anchorage, Alaska
- Fairbanks, Alaska
- Guam I.
- Huancayo, Peru (Instituto Geofisico de Huancayo)
- Maui, Hawaii
- Narsarssuak, Greenland
- Point Barrow, Alaska
- San Francisco, California (Stanford University)
- Trinidad, British West Indies
- Washington, D. C.
- White Sands, New Mexico

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 61 to 72 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D. C.

Table 73 presents ionosphere character figures for Washington, D. C., during June 1951, as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

RADIO PROPAGATION QUALITY FIGURES

Table 74 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, May 1951, compared with the CRPL daily radio disturbance warnings, which are primarily for the North Atlantic paths, the CRPL weekly radio propagation forecasts of probable disturbed periods, and the half-day Cheltenham, Maryland, geomagnetic K-figures.

The radio propagation quality figures are prepared from radio traffic and ionospheric data reported to the CRPL, in a manner basically the same as that described in IRPL-R31, "North Atlantic Radio Propagation Disturbances, October 1943 through October 1945," issued February 1, 1946. The scale conversions for each report are revised for use with the data beginning January 1948, and statistical weighting replaces what was, in effect, subjective weighting. Separate master distribution curves of the type described in IRPL-R31 were derived for the part of 1946 covered by each report; data received only since 1946 are compared with the master curve for the period of the available data. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. Each report is given a statistical weight which is the reciprocal

of the departure from linearity. The half-daily radio propagation quality figure, beginning January 1948, is the weighted mean of the reports received for that period.

These radio propagation quality figures give a consensus of opinion of actual radio propagation conditions as reported by the half day over the two general areas. It should be borne in mind, however, that though the quality may be disturbed according to the CRPL scale, the cause of the disturbance is not necessarily known. There are many variables that must be considered. In addition to ionospheric storminess itself as the cause, conditions may be reported as disturbed because of seasonal characteristics such as are particularly evident in the pronounced day and night contrast over North Pacific paths during the winter months, or because of improper frequency usage for the path and time of day in question. Insofar as possible, frequency usage is included in rating the reports. Where the actual frequency is not shown in the report to the CRPL, it has been assumed that the report is made on the use of optimum working frequencies for the path and time of day in question. Since there is a possibility that all disturbance shown by the quality figures is not due to ionospheric storminess alone, care should be taken in using the quality figures in research correlations with solar, auroral, geomagnetic, or other data. Nevertheless, these quality figures do reflect a consensus of opinion of actual radio propagation conditions as found on any one half day in either of the two general areas.

OBSERVATIONS OF THE SOLAR CORONA

Tables 75 through 77 give the observations of the solar corona during June 1951 obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 78 through 80 list the coronal observations obtained at Sacramento Peak, New Mexico, during June 1951, derived by the High Altitude Observatory from spectrograms taken by Harvard University as a part of its performance of an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories. The data are listed separately for east and west limbs at 5-degree intervals of position angle north and south of the Solar Equator at the limb. The time of observation is given to the nearest tenth of a day, GCT.

Table 75 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 76 gives similarly the intensities of the first red (6374A) coronal line; and table 77, the intensities of the second red (6702A) coronal line; all observed at Climax in June 1951.

Table 78 gives the intensities of the green (5303A) coronal line; table 79, the intensities of the first red (6374A) coronal line; and table 80, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in June 1951.

The following symbols are used in tables 75 through 80: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

Tables 81 and 82 give details of the Climax and Sacramento Peak observations, respectively, from January 1951 through June 1951. The first column lists the Greenwich date of observation; the following columns give the threshold or lowest observable intensity of 5303A for each spectrum plate centered at the astronomical position angle indicated; the last two columns indicate the observer and the person responsible for the intensity estimates of the observation. These tables continue the presentation of coronal data in the manner of table 1 of CRPL-1-4 and appear in the F series regularly at intervals of six months.

OBSERVATIONS OF SOLAR FLARES

Table 83 gives the preliminary record of solar flares reported to the CRPL. These reports are communicated on a rapid schedule at the sacrifice of detailed accuracy. Definitive and complete records are published later in the Quarterly Bulletin of Solar Activity, I.A.U., in various observatory publications, and elsewhere. The present listing serves to identify and roughly describe the phenomena observed. Details should be sought from the reporting observatory.

Reporting directly to the CRPL are the following observatories: Mt. Wilson, McMath-Hulbert, U. S. Naval, Wendelstein, Kanzel and High Altitude at Sacramento Peak, New Mexico. The remainder report to Meudon (Paris), and the data are taken from the Paris-URSIgram broadcast, monitored fairly regularly by the CRPL. The data on solar flares reported from Sacramento Peak, New Mexico, communicated by the High Altitude Observatory at Boulder, Colorado, are provided by Harvard University as the result of work undertaken on an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories.

The table lists for each flare the reporting observatory, date, times of beginning and ending of observation, duration (when known), total area (corrected for foreshortening), and heliographic coordinates. For the maximum phase of the flare is given the time, intensity, area relative to the total area, and the importance. The column "SID observed" is to indicate when a sudden ionosphere disturbance, noted elsewhere in these reports, occurred at the time of a flare. Times are in Universal Time (GCT).

RELATIVE SUNSPOT NUMBERS

Table 84 lists the daily provisional Zürich relative sunspot numbers, R_Z, as communicated by the Swiss Federal Observatory. The American sunspot numbers which in the past were included in this table are now being prepared on a slower schedule and therefore do not appear in this issue.

INDICES OF GEOMAGNETIC ACTIVITY

Table 85 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary mean 3-hourly K-indices, Kw; (2) preliminary international character-figures, C; (3) geomagnetic planetary three-hour-range indices, Kp; (4) magnetically selected quiet and disturbed days.

Kw is the arithmetic mean of the K-indices from all reporting observatories for each three hours of the Greenwich day, on a scale 0 (very quiet) to 9 (extremely disturbed). The C-figure is the arithmetic mean of the subjective classification by all observatories of each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity.

Kp is the mean standardized K-index from 11 observatories between geomagnetic latitudes 47 and 63 degrees. The scale is 0 to 9, expressed in thirds of a unit, e.g., 5- is 4 2/3, 5o is 5 0/3, and 5 + is 5 1/3. This planetary index is designed to measure solar particle-radiation by its magnetic effects, specifically to meet the needs of research workers in the ionospheric field. A complete description of Kp has appeared in Bulletin 12b, "Geomagnetic Indices C and K, 1948," published-in Washington, D. C., 1949, by the Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics. Tables of Kp for 1945-48 are in Bulletin 12b; for 1940-44 and 1949, in these CRPL-F reports, F65-67; for 1950, monthly in F68 and following issues. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles Kw, C and selected days. The Chairman of the Committee computes the planetary index.

SUDDEN IONOSPHERE DISTURBANCES

Tables 86, 87, 88, 89, 90, 91, 92, and 93 list respectively the sudden ionosphere disturbances observed at Ft. Belvoir, Virginia, June 1951; in England, June 1951; at Lindau, Harz, Germany, April and May 1951; in Barbados, British West Indies, May 1951; at Colombo, Ceylon, April 1951; at Platanos, Argentina, May 1951; at Point Reyes, California, June 1951; and at Riverhead, New York, June 1951.

Table 1

Washington, D. C. (38.7°N, 77.1°W) June 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.0					3.2	2.8
01	280	4.5					3.1	2.9
02	290	4.0					3.1	2.8
03	290	3.7					2.2	2.9
04	280	3.3					3.2	(2.8)
05	270	3.5	----	----	----	----	3.3	3.0
06	300	4.4	240	3.5	110	2.4	3.8	3.0
07	350	5.0	230	4.0	110	2.8	4.4	3.0
08	390	5.1	220	4.3	100	3.1	4.7	2.9
09	390	5.6	220	4.5	100	3.3	5.6	2.8
10	400	5.8	210	4.6	100	3.4	6.5	2.7
11	390	6.0	210	4.7	100	3.6	5.6	2.9
12	370	6.0	220	4.8	100	3.6	4.0	2.8
13	380	6.1	220	4.7	100	3.5		2.8
14	360	6.1	210	4.7	100	3.4	4.5	2.8
15	370	6.2	220	4.6	110	3.4		2.8
16	340	6.4	220	4.5	100	3.2		2.9
17	320	6.6	230	4.1	100	3.0	3.6	2.9
18	300	6.8	240	3.6	110	2.5	4.5	3.0
19	260	6.8	----	----	120	1.9	3.8	3.0
20	250	6.6					3.4	3.0
21	260	6.6					3.4	2.9
22	260	6.0					3.6	2.9
23	270	5.4						2.8

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 2

Point Barrow, Alaska (71.3°N, 156.8°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	(4.6)					7.8	3.0
01	290	(4.8)					6.8	(3.0)
02	290	(4.7)			---	---	4.3	(3.0)
03	300	(4.4)	---	---	---	---	4.4	(2.9)
04	340	4.3	270	(3.5)	110	2.4	3.6	2.9
05	410	(4.3)	250	3.5	110	2.4	3.3	(2.8)
06	460	(4.3)	240	3.7	100	2.6	4.2	(2.8)
07	460	(4.6)	240	3.9	100	2.9	4.3	(2.6)
08	460	5.0	240	4.2	100	3.2	4.4	2.6
09	450	5.0	240	4.2	100	3.0	4.6	2.7
10	460	6.0	220	4.2	100	2.9	4.3	2.6
11	460	5.0	220	4.2	100	3.0		2.6
12	470	5.0	220	4.3	100	3.1		2.6
13	460	5.2	220	4.3	100	3.4		2.7
14	440	5.3	230	4.3	100	3.2		2.7
15	390	5.3	230	4.3	100	3.2		2.8
16	400	5.4	240	4.2	100	2.9		2.8
17	370	5.4	240	4.0	100	2.9		2.8
18	380	5.0	250	(3.8)	110	2.8		2.8
19	350	4.8	260	(3.8)	110	---		3.0
20	320	4.6	---	---	110	---	4.1	3.0
21	300	4.5	---	---	---	---	4.4	3.0
22	300	(4.3)	---	---	---	---	4.9	(3.0)
23	310	(4.4)					5.8	(3.0)

Time: 150.0°W.
Sweep: 1.0 Mc to 26.0 Mc in 15 seconds.

Table 3

Tromso, Norway (69.7°N, 19.0°E) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	---	---	---	---	---	---	---	---
07	(400)	6.0	240	4.4	---	---	(3.2)	2.8
08	390	6.2	240	4.2	110	2.9	3.6	2.8
09	380	5.5	230	4.4	105	3.0	3.4	2.8
10	390	5.7	230	4.4	105	3.1	3.3	2.8
11	370	5.8	220	4.4	110	3.2	3.1	2.8
12	365	6.0	230	4.5	105	3.2		2.8
13	360	5.6	230	4.4	110	3.2	3.2	2.8
14	370	5.4	230	4.3	110	3.0	3.2	2.6
15	375	5.5	230	4.3	110	3.0	3.2	2.8
16	355	5.6	240	4.1	110	2.8	3.2	2.9
17	330	5.3	240	4.0	110	2.6	3.9	3.0
18	335	5.2	250	3.8	110	2.5	4.4	3.0
19	315	5.2	255	---	110	2.4	4.1	3.0
20	340	5.1	265	---	110	---	4.4	3.0
21	325	5.1	---	---	110	---	4.5	2.9
22	330	4.9			110	---	4.0	2.8
23	---	4.6			---	---	(5.5)	2.8

Time: 15.0°E.
Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 4

Anchorage, Alaska (61.2°N, 149.9°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	3.6						2.8
01	350	3.4						2.7
02	350	3.3						2.7
03	350	3.7	---	---			1.9	2.7
04	390	4.4	300	3.1	---	---		2.7
05	410	4.7	260	3.5	---	---		2.7
06	400	5.0	250	3.8	110	2.6		2.7
07	430	5.2	230	4.0	110	2.8		2.7
08	440	5.4	230	4.2	110	3.0		2.6
09	440	5.4	230	4.3	100	3.1		2.7
10	460	5.3	220	4.3	100	3.2		2.6
11	460	5.4	220	4.4	100	3.3		2.7
12	450	5.4	230	4.5	100	3.1		2.7
13	450	5.4	220	4.4	100	3.1		2.7
14	450	5.4	230	4.4	100	3.0		2.7
15	410	5.5	230	4.3	110	3.0		2.8
16	400	5.4	230	4.2	110	3.0		2.8
17	360	5.5	260	4.1	110	---		2.9
18	320	5.5	250	3.7	---	---		3.0
19	300	5.4	250	---	---	---		3.0
20	270	5.5						3.0
21	270	5.2						3.0
22	280	4.4						2.9
23	320	4.0						2.9

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 5

Oslo, Norway (60.0°N, 11.0°E) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	4.8						2.8
01	280	4.4					2.7	2.8
02	280	3.9						2.8
03	280	3.6	---	---	---	E	1.5	2.8
04	270	3.9	270	2.7	135	1.6	1.8	2.9
05	280	4.4	250	3.1	120	2.0	2.3	2.9
06	325	4.6	240	3.6	110	2.4	2.7	2.9
07	370	5.0	226	3.9	105	2.6	2.8	2.8
08	370	5.3	220	4.2	100	2.9	3.4	2.8
09	370	5.7	215	4.2	100	3.1	3.5	2.8
10	350	6.0	210	4.4	100	3.2	3.5	2.9
11	350	6.3	210	4.5	100	3.3	3.6	2.9
12	355	6.2	210	4.6	100	3.3	3.5	2.9
13	350	6.1	210	4.5	100	3.2	3.5	3.0
14	350	6.1	210	4.4	100	3.2	3.2	3.0
15	350	6.0	215	4.4	100	3.2	3.3	2.9
16	330	6.1	220	4.2	100	3.0	3.4	2.9
17	300	6.2	230	4.1	106	2.8	3.4	3.0
18	290	6.0	240	3.8	110	2.5	3.5	3.1
19	265	6.0	250	3.4	115	2.2	3.3	3.0
20	255	5.9	250	---	125	1.8	2.7	3.0
21	250	5.8	---	---	---	---	2.1	3.0
22	260	5.6						2.8
23	270	5.1						2.8

Time: 16.0°E.
Sweep: 1.3 Mc to 14.0 Mc in 8 minutes, automatic operation.

Table 6

Adak, Alaska (51.9°N, 176.6°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	(4.8)						(2.6)
01	300	4.4						2.6
02	300	4.3					1.2	2.6
03	300	4.1					1.9	2.6
04	330	4.2	290	---	110	---	2.2	2.7
05	370	4.8	260	3.4	110	2.2	2.4	2.6
06	360	5.6	240	3.8	110	2.5	3.0	2.6
07	380	6.0	240	4.0	110	2.8	3.8	2.6
08	380	6.2	230	4.2	110	3.3	4.2	2.7
09	370	6.0	220	4.4	110	3.4	4.7	2.8
10	380	6.2	220	4.5	110	(3.4)	4.9	2.8
11	400	6.1	220	4.6	110	3.5	4.8	2.8
12	400	6.0	220	4.6	110	3.6	4.6	2.8
13	370	6.3	220	4.5	110	3.4	4.3	2.8
14	370	6.4	220	4.4	110	3.3	3.7	2.8
15	350	6.2	230	4.4	110	3.1	3.7	2.8
16	340	6.1	240	4.1	110	---	3.4	2.8
17	310	6.0	250	---	110	2.6	3.9	3.0
18	290	6.2	260	---	110	2.4	3.8	3.0
19	270	6.4	260	---	130	1.8	3.6	3.0
20	260	6.6					3.2	2.9
21	260	6.3					2.8	2.9
22	260	6.0					2.7	2.8
23	260	5.4					1.3	2.7

Time: 180.0°W.
Sweep: 1.0 Mc to 26.0 Mc in 18 seconds.

Table 7

San Francisco, California (37.4°N, 122.2°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(330)	4.6					3.0	2.7
01	(300)	(4.6)					2.8	(2.7)
02	(300)	4.6					2.3	(2.7)
03	300	4.2						2.6
04	(300)	4.0					3.3	2.7
05	300	4.2	---	---			3.0	2.8
06	340	5.3	250	(3.7)	120	(2.3)	3.2	2.9
07	340	5.7	---	4.2	120	(2.8)	3.6	2.9
08	380	6.2	---	(4.6)	120	---	3.7	2.7
09	390	6.4	220	(4.7)	120	---	4.0	2.7
10	400	(6.8)	---	(4.8)	120	---	4.5	2.8
11	370	6.6	---	(4.9)	---	---		2.7
12	380	6.8	---	5.0	---	---	4.8	2.8
13	380	7.0	---	(5.0)	120	---	3.9	2.8
14	340	7.4	---	4.9	---	---		2.8
16	340	7.0	---	4.7	120	---		2.9
16	330	7.0	---	4.6	120	---		2.9
17	310	7.0	---	4.2	120	(2.9)	3.0	3.0
18	280	6.8	---	3.7	120	(2.3)	2.8	3.1
19	260	6.8					3.2	3.1
20	250	6.6					3.4	3.0
21	250	6.0					3.3	3.0
22	260	5.2					2.8	2.8
23	(300)	4.8					2.8	2.7

Time: 120.0°W.
Sweep: 1.3 Mc to 18.0 Mc in 4 minutes.

Table 8

White Sands, New Mexico (32.3°N, 106.5°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	4.8					2.6	2.7
01	300	4.7					2.3	2.7
02	290	4.6					2.3	2.8
03	280	4.4					2.4	2.8
04	290	4.0					2.2	2.8
05	280	4.0	300	---	110	---	2.5	2.9
06	280	5.1	250	3.6	120	2.2	3.3	3.0
07	320	5.7	230	4.1	110	2.7	3.9	3.0
08	330	6.3	220	4.4	110	3.1	4.5	2.9
09	370	6.4	220	4.8	110	3.2	4.0	2.6
10	380	6.7	220	4.8	100	3.4	4.5	2.6
11	390	7.2	220	4.8	110	3.5	4.2	2.7
12	380	7.8	220	4.8	110	3.6	3.4	2.7
13	370	8.0	220	4.8	110	3.6	3.3	2.7
14	350	8.3	230	4.8	110	3.5		2.7
15	330	8.1	230	4.6	110	3.3	2.7	2.8
16	310	8.1	240	4.4	110	3.1	3.9	2.9
17	300	7.8	240	4.0	110	2.7	3.3	3.0
18	280	7.4	250	---	120	2.1	3.6	3.0
19	240	7.2					3.0	3.1
20	(240)	6.4					2.8	3.0
21	(250)	5.6					2.7	2.8
22	(280)	5.0					2.7	2.7
23	(300)	5.0					2.8	2.7

Time: 105.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 9

Okinawa I. (26.3°N, 127.8°E) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	9.4					4.9	2.8
01	270	8.0					4.1	2.9
02	250	8.1					3.9	3.1
03	250	(6.9)					3.2	(3.0)
04	260	6.2					3.0	3.0
05	260	5.7					2.4	3.0
06	240	6.8			110	(2.2)	3.8	3.2
07	240	6.9	230	---	110	(2.8)	4.7	3.1
08	270	7.7	230	---	110	(3.2)	5.6	3.0
09	310	8.2	220	(5.1)	110	3.5	5.7	2.8
10	340	9.1	(250)	(6.0)	110	3.5	6.0	2.7
11	340	10.2	230	(6.0)	110	3.6	4.8	2.7
12	330	11.2	230	(5.1)	110	(3.7)	5.4	2.9
13	330	11.4	(250)	(5.2)	110	(3.6)	5.0	2.8
14	330	12.2	240	(5.0)	110	(3.6)	5.0	2.9
15	310	12.8	240	---	110	(3.4)	5.0	3.0
16	290	12.9	250	---	110	3.3	5.6	3.0
17	270	12.8	250	---	110	2.9	5.1	3.0
18	250	11.8	---	---	(120)	---	5.3	3.1
19	250	9.9					4.5	3.1
20	(270)	8.9					5.5	2.7
21	300	8.5					4.8	2.6
22	310	8.3					4.8	2.6
23	(310)	(8.0)					6.6	(2.7)

Time: 127.5°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 10

Maui, Hawaii (20.8°N, 156.5°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	7.0					2.7	2.7
01	280	7.2					2.4	2.8
02	280	7.0					3.2	2.8
03	280	6.1					2.6	2.8
04	280	5.9					2.2	2.8
05	280	5.3					2.0	2.8
06	270	5.6	---	---	130	1.7	2.5	2.9
07	260	6.7	230	---	120	2.4	4.0	2.9
08	280	7.9	230	4.2	110	3.0	4.5	2.8
09	320	8.0	220	4.8	110	3.4	6.6	2.6
10	380	9.0	220	5.0	110	3.5	6.6	2.5
11	380	10.1	220	5.1	110	3.6	6.2	2.6
12	360	10.9	220	5.2	110	3.7	5.5	2.7
13	350	11.5	220	5.1	110	3.8	5.1	2.7
14	330	12.1	220	5.0	110	3.7	4.5	2.8
15	320	12.3	230	4.8	110	3.5	4.8	2.9
16	300	12.2	230	4.6	110	3.3	5.3	3.0
17	290	12.1	240	(4.3)	120	2.9	4.4	3.0
18	270	11.7	260	---	120	2.2	4.0	3.1
19	240	11.0					3.9	3.1
20	240	8.9					4.3	2.9
21	270	8.3					3.5	2.7
22	280	8.2					2.2	2.7
23	290	7.5					2.4	2.7

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 11

Trinidad, British West Indies (10.7°N, 61.6°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	9.7						3.0
01	250	8.8						3.1
02	240	8.0						3.1
03	230	7.2						3.2
04	230	6.8						3.2
05	250	5.4						3.1
06	250	5.5			---	---	2.4	3.1
07	230	6.8	220	---	110	2.6	3.2	3.2
08	270	7.6	220	4.7	110	3.1	3.9	3.0
09	280	8.8	220	5.0	110	3.5	4.3	2.9
10	310	9.7	210	5.1	100	3.7	4.4	2.8
11	320	10.7	220	5.3	110	3.8	4.4	2.8
12	330	11.8	220	5.2	110	3.9	4.4	2.8
13	320	12.5	210	5.1	110	3.8	4.5	2.9
14	300	12.8	220	5.0	110	3.8	5.3	3.0
15	300	12.3	220	4.8	100	3.6	5.4	3.0
16	290	12.2	220	4.6	100	3.3	4.5	2.9
17	250	11.6	220	4.0	110	2.6	4.4	3.0
18	250	11.2			---	---	3.8	3.0
19	250	10.3					3.6	2.9
20	270	10.0					3.1	2.8
21	270	10.1					2.1	2.8
22	270	9.7						2.8
23	260	9.6						3.0

Time: 60.0°W.
Sweep: 1.2 Mc to 19.5 Mc, manual operation.

Table 12

Huancayo, Peru (12.0°S, 75.3°W) May 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	7.1					3.2	3.2
01	230	6.2					3.2	3.2
02	230	5.6					3.2	3.2
03	250	4.9					3.2	3.2
04	260	4.4					3.0	3.1
05	260	4.2					3.1	3.2
06	280	5.0			100	---	3.2	3.0
07	250	8.0	---	---	110	2.4	5.3	3.1
08	260	9.5	220	---	110	3.0	7.5	2.9
09	300	9.9	220	---	110	3.2	8.0	2.7
10	300	9.2	220	4.8	110	---	10.1	2.6
11	310	9.2	210	4.8	110	---	10.2	2.5
12	310	9.0	210	4.9	110	---	10.3	2.5
13	310	8.8	210	4.8	110	---	10.2	2.5
14	300	8.9	210	(4.6)	110	3.2	10.1	2.5
15	240	9.0	210	---	110	3.1	8.1	2.6
16	240	9.0	---	---	110	(2.7)	7.9	2.6
17	270	8.9			110	(2.1)	4.9	2.6
18	300	8.6			110	---	3.3	2.5
19	300	8.1					2.8	2.5
20	290	8.2					3.2	2.6
21	240	8.4					3.2	2.9
22	220	7.9					3.2	3.1
23	220	7.4					3.2	3.2

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 13

Resolute Bay, Canada (74.7°N, 94.9°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.5						3.0
01	270	4.5						3.0
02	270	4.8						3.0
03	270	4.4						3.0
04	280	4.1						3.0
05	280	4.0	---	---				3.1
06	290	4.2	---	3.5				3.0
07	280	4.6	250	3.4				3.0
08	340	4.5	240	3.7				2.9
09	310	4.6	230	3.7	---	---		3.0
10	370	4.9	220	3.9	---	---		3.0
11	350	5.0	220	3.9	---	---		2.8
12	360	5.2	220	3.9	---	---		2.8
13	380	4.9	220	3.9	---	---		2.8
14	380	4.8	220	3.9	---	---		2.9
15	350	5.3	230	3.8	---	---		2.8
16	350	5.0	230	3.8	---	---		2.8
17	340	5.0	220	3.8	---	---		3.0
18	300	4.8	230	3.7				3.0
19	270	4.6	240	---				2.9
20	270	4.8	---	---				3.0
21	270	4.8						3.0
22	270	4.8						3.0
23	270	4.6						3.0

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 14

Point Barrow, Alaska (71.3°N, 156.8°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(3.9)					4.9	(3.0)
01	300	(3.9)					7.3	(3.0)
02	290	(4.0)					4.4	(2.9)
03	300	(3.7)					4.0	(3.0)
04	300	(3.8)	---	---	---	---	3.4	(3.0)
05	(310)	(3.6)	---	---	---	---	4.1	(2.9)
06	(370)	(3.8)	280	3.3	110	---	3.0	(2.7)
07	(370)	(4.1)	250	3.6	100	2.6	3.9	(2.9)
08	370	(4.6)	260	(3.8)	---	---	4.4	(2.9)
09	(<440)	4.7	230	4.0	100	---	4.4	2.7
10	390	5.0	230	4.0	100	3.0	4.2	2.8
11	440	4.9	<230	4.1	100	3.0	3.5	2.7
12	460	4.9	220	4.2	100	3.1		2.6
13	420	5.1	230	4.2	100	(3.1)		2.8
14	440	5.2	240	4.2	100	3.1		2.7
15	380	5.1	250	4.1	100	2.9		2.8
16	350	5.2	240	4.0	100	2.9		2.9
17	340	(4.8)	<260	(3.9)	100	2.6		2.9
18	(300)	(4.7)	260	---	110	(2.6)	3.2	3.0
19	280	(4.5)	---	---	---	---	4.1	3.1
20	280	(4.4)			---	---	4.2	(3.1)
21	300	(4.0)					5.0	(3.1)
22	300	(3.9)					5.9	(3.0)
23	300	(3.9)					4.2	(3.0)

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 15

Fairbanks, Alaska (64.9°N, 147.8°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					6.6	---
01	---	---					5.0	---
02	---	---					6.0	---
03	---	---					5.4	---
04	(350)	(4.0)					5.0	(2.9)
05	(380)	(4.1)	---	---			4.2	(2.9)
06	(400)	4.4	---	(3.4)				2.9
07	(390)	(4.6)	---	3.8				(3.0)
08	(390)	4.9	---	4.0	---	---		3.0
09	(400)	5.2	230	4.0	---	---		(2.9)
10	420	5.2	220	(4.2)	---	---		3.0
11	400	5.4	240	(4.2)	---	---		2.9
12	390	5.6	220	(4.2)	120	---		3.0
13	370	5.4	220	(4.2)	---	---		3.1
14	400	5.3	240	(4.2)	---	---		3.0
15	(350)	6.0	(240)	---	---	---		3.1
16	(310)	(5.9)	---	---	---	---		3.1
17	(280)	5.4	---	---	---	---		3.3
18	270	5.2	---	---				3.2
19	260	4.8	---	---				3.3
20	260	5.0						3.2
21	(270)	4.2					4.3	3.2
22	(280)	---					5.0	---
23	---	---					5.0	---

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 16

Anchorage, Alaska (61.2°N, 149.9°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	3.2						3.0
01	350	3.1						2.8
02	340	3.1						2.8
03	340	3.4						2.8
04	340	3.5						2.9
05	340	3.8	280	---	---	---		3.0
06	380	4.1	250	3.6	120	2.1		2.8
07	400	4.4	230	3.7	120	2.6		2.9
08	400	5.0	230	4.0	110	3.0		2.9
09	420	5.0	220	4.0	110	3.0		2.8
10	420	5.2	220	4.3	110	3.2		2.8
11	380	5.7	220	4.3	110	3.3		3.0
12	400	5.4	220	4.3	110	3.4		2.9
13	380	5.4	220	4.2	110	---		3.0
14	350	5.4	220	4.3	---	---		3.0
15	320	5.4	220	4.0	---	---		3.1
16	300	5.7	230	4.0	110	(3.0)		3.2
17	300	5.5	240	---	---	---		3.1
18	250	5.7	---	---	---	---		3.2
19	250	5.6						3.2
20	260	5.6						3.1
21	260	5.2						3.1
22	280	3.8						3.1
23	320	3.2						2.9

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 17

Narsarssuak, Greenland (61.2°N, 45.4°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<330	---					4.3	---
01	(360)	(3.3)					4.1	(2.4)
02	(420)	---					4.5	---
03	(370)	---					4.4	---
04	---	(3.2)					4.4	(2.6)
05	(300)	(3.8)					4.9	(2.8)
06	(280)	(4.2)	---	---	---	---	3.9	(2.8)
07	(310)	(4.4)	---	---	(120)	---	4.2	(2.9)
08	370	(4.8)	260	3.9	120	---	2.9	2.7
09	380	(5.1)	250	4.1	(120)	---		2.8
10	<420	5.0	240	4.2	120	3.0		2.6
11	<420	5.2	240	(4.2)	110	3.1		2.6
12	400	5.3	240	4.3	(120)	(3.1)		2.6
13	420	5.4	(240)	(4.2)	(120)	3.1		2.7
14	400	5.4	250	(4.1)	120	---		2.7
15	370	(5.2)	240	4.1	120	3.0		(2.7)
16	360	5.2	250	4.0	120	2.6		2.7
17	350	(5.2)	260	---	120	2.4	2.8	(2.8)
18	310	(5.1)	280	---	(120)	---	3.8	(2.8)
19	320	5.0			(130)	---	4.2	(2.8)
20	310	(4.2)					5.9	(2.7)
21	280	(4.4)					5.6	(2.8)
22	310	(4.6)					5.4	---
23	320	(4.0)					4.8	(2.6)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 18

Churchill, Canada (58.8°N, 94.2°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.0			---	---	5.9	2.9
01	290	4.0			---	---	4.4	2.9
02	280	3.2			---	---	4.0	2.8
03	330	(3.0)			100	2.2	4.5	---
04	320	3.5			120	2.0	4.2	2.8
05	330	(3.6)	---	---	110	2.5		2.9
06	300	(3.9)	---	---	110	2.9		2.6
07	300	---	240	4.0	110	3.0		---
08	300	4.7	210	4.0	110	3.0		3.0
09	(370)	(5.5)	220	4.2	100	3.0		2.8
10	(370)	5.7	230	4.3	100	3.3		2.6
11	360	5.2	220	4.3	110	3.3		2.8
12	400	5.6	220	4.3	100	3.2		2.6
13	400	5.6	230	4.3	110	3.1		2.7
14	420	5.7	220	4.3	100	3.0		2.6
15	400	5.8	230	4.1	100	3.0		2.6
16	370	6.0	240	4.0	100	2.8		2.6
17	340	5.8	250	4.0	110	2.8		2.8
18	300	5.1	260	3.5	110	2.6		2.8
19	300	5.0	---	---	110	2.4	5.9	2.8
20	280	4.6			120	2.6	6.8	2.8
21	280	4.0			120	2.1	5.4	2.8
22	310	(4.6)			110	2.4	6.2	2.9
23	280	4.0			---	---	6.5	2.8

Time: 90.0°W.
Sweep: 2.0 Mc to 16.0 Mc in 1 minute.

Table 19

Prince Rupert, Canada (54.3°N, 130.3°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.0						3.0
01	310	2.9			---	---		2.8
02	330	2.3			---	---	1.7	2.9
03	320	2.5			---	---	2.4	2.8
04	340	2.3			---	---	1.2	2.9
05	320	2.8			100	1.9	1.7	2.8
06	280	3.4	260	3.0	120	2.0		2.8
07	390	4.0	260	3.5	110	2.3		2.8
08	420	4.5	240	3.9	100	2.5		2.8
09	430	4.5	220	4.0	100	3.0		2.7
10	410	4.7	210	4.2	100	3.1		2.7
11	470	5.0	210	4.2	100	3.2		2.5
12	460	5.2	200	4.4	100	3.2		2.6
13	400	5.4	210	4.4	100	3.3		2.8
14	390	5.3	220	4.5	100	3.2		2.8
15	360	5.5	220	4.5	100	3.0		2.9
16	340	5.6	230	4.2	100	3.0		2.9
17	300	5.3	230	3.8	110	2.8		3.0
18	270	5.6	250	3.7	110	2.4		3.0
19	260	5.2	---	---	120	2.0		3.0
20	260	5.0			---	---		3.0
21	260	4.8			---	---		3.0
22	250	4.1			---	---		3.0
23	280	3.6			---	---		3.0

Time: 120.0°W.
Sweep: 0.5 Mc to 15.0 Mc in 15 seconds.

Table 20

Adak, Alaska (51.9°N, 176.6°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.0						2.6
01	320	3.7						2.5
02	320	3.4						2.5
03	310	3.4						2.6
04	300	3.2						2.7
05	280	3.7	300	---	---	---		2.8
06	260	4.4	260	3.4	130	2.2		3.0
07	290	5.0	240	4.0	120	2.4	2.8	3.1
08	310	5.3	230	4.0	110	2.9	3.1	3.0
09	330	5.1	230	4.2	110	3.1	3.2	3.0
10	320	5.5	220	4.3	110	3.1	3.2	3.0
11	320	5.8	220	4.3	110	---	3.3	3.0
12	300	7.1	220	4.4	110	---	3.4	3.0
13	300	7.0	220	4.5	110	---	3.0	3.0
14	280	5.8	230	4.3	110	3.1		3.1
15	280	5.8	230	---	110	(3.0)		3.1
16	260	6.9	240	---	120	2.7		3.1
17	250	5.7	250	---	120	2.4		3.1
18	250	5.8	---	---	140	---	1.8	3.1
19	250	6.7					1.7	3.0
20	260	5.3						3.0
21	260	5.9						2.8
22	260	5.1						2.8
23	270	4.5						2.7

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 21

Winnipeg, Canada (49.9°N, 97.4°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.0						
01	320	3.0					3.0	
02	320	3.0					3.0	
03	360	3.3			---	---	2.8	
04	320	3.0			---	---	3.0	
05	300	3.0			---	---		---
06	280	3.8	---	---	---	---		3.0
07	340	4.3	250	---	---	---		2.9
08	380	(5.0)	240	4.0	110	(2.8)		2.9
09	420	5.0	230	4.1	120	3.0		2.8
10	420	5.2	220	4.4	110	3.1		2.8
11	430	5.4	220	4.5	---	---		---
12	430	5.8	210	4.5	---	3.5		2.5
13	390	5.0	220	4.5	110	(3.5)		2.8
14	390	5.1	230	4.7	110	3.4		2.8
15	380	5.0	230	4.6	110	3.2		2.8
16	380	6.0	230	4.3	110	3.0		2.8
17	340	5.0	240	4.1	120	2.8		2.8
18	310	6.0	250	---	120	2.6		2.9
19	270	5.1	---	---				---
20	260	5.8						---
21	260	5.6						---
22	270	4.5						---
23	300	4.0						---

Time: 90.0°W.

Table 22

St. John's, Newfoundland (47.5°N, 52.7°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.0						2.8
01	300	3.2						2.7
02	300	3.0						2.8
03	280	3.0						2.9
04	290	2.5						2.9
05	280	3.2	---	---	100	1.8		2.9
06	250	4.1	250	3.4	110	2.4		3.1
07	300	4.5	240	4.0	100	2.7		3.1
08	360	4.8	230	4.2	100	3.0		2.9
09	440	5.0	220	4.2	100	3.2		2.7
10	440	5.3	210	4.4	100	3.3		2.8
11	400	5.4	210	4.4	100	3.4		2.8
12	400	5.8	220	4.5	100	3.4		2.8
13	390	6.2	220	4.5	100	3.3		2.7
14	370	5.4	230	4.4	100	3.2		2.8
15	350	5.6	240	4.2	100	3.0		2.8
16	320	6.5	250	4.0	100	2.8		2.8
17	290	6.4	260	3.6	110	2.4		2.9
18	270	5.7	---	---	140	2.0		2.9
19	260	6.0			---	---		2.9
20	270	5.0						2.9
21	300	4.5						2.7
22	300	4.2						2.7
23	300	4.4						2.7

Time: 60.0°W.
Sweep: 1.2 Mc to 20.0 Mc, manual operation.

Table 23

Schwarzenburg, Switzerland (46.8°N, 7.3°E) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	360	4.3						
01	360	4.2						
02	350	3.8						
03	340	3.8					1.8	
04	325	3.5						
05	330	3.5						
06	300	4.2			140	1.9		
07	295	5.2			120	2.3		
08	280	5.4	270	4.0	110	2.7		
09	310	5.0	250	4.4	110	2.9		
10	350	5.5	250	4.5	110	3.1		
11	340	5.7	240	4.6	110	3.3		
12	360	7.1	230	4.8	110	3.2		
13	350	7.5	230	5.0	110	3.3		
14	330	7.5	250	5.0	110	3.2		
15	325	7.4	255	4.4	110	3.1		
16	280	7.5	255	4.6	110	3.0		
17	300	7.8			110	2.7		
18	300	7.8			120	2.3		
19	300	7.8			140	2.0		
20	260	6.5			---	---		
21	280	5.4						
22	300	5.0						
23	320	4.4						

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 24

Ottawa, Canada (45.4°N, 75.7°W) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.1						2.7
01	300	3.4						2.7
02	300	3.2						2.7
03	300	2.8						2.7
04	310	2.7						2.7
05	300	3.0			---	---		2.8
06	260	4.0	---	---	---	---		3.0
07	300	4.5	240	3.9	110	2.5		3.0
08	400	4.8	220	4.0	110	3.0		2.9
09	(580)	<4.5	210	4.2	110	3.1		2.5
10	440	5.0	210	4.5	110	3.3		2.8
11	480	5.4	200	4.4	110	3.5		2.7
12	400	5.8	210	4.5	110	3.6		2.7
13	390	6.0	230	4.5	110	3.5		2.7
14	400	5.0	240	4.5	110	3.5		2.7
15	360	5.8	230	4.3	110	3.4		2.7
16	340	5.2	240	4.3	110	3.0		2.8
17	310	5.6	250	3.9	110	2.8		2.9
18	280	5.5	260	---	120	(2.4)		2.9
19	270	5.8	---	---	---	---		2.8
20	250	5.0	---	---				2.8
21	290	3.6	---	---				2.7
22	290	3.7						2.7
23	290	3.8						2.7

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 25

Wakkanai, Japan (46.4°N, 141.7°E) April 1961

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	5.8						2.6
01	300	5.6						2.6
02	310	5.3						2.6
03	300	5.0						2.7
04	300	4.4						2.8
05	290	5.0						2.8
06	280	5.9	300	3.8	120	2.2		3.0
07	300	6.5	270	4.0	110	2.6		3.1
09	300	6.5	260	4.3	110	3.1		3.0
09	310	7.3	260	4.5	110	3.1		3.0
10	310	7.5	250	4.8	110	3.4		2.9
11	310	8.3	260	4.9	110	3.3	4.0	2.9
12	300	7.9	250	4.8	110	3.3		2.9
13	310	8.0	250	4.8	110	---		3.0
14	300	8.8	260	4.6	110	---		3.0
15	300	8.0	260	4.4	110	2.9		3.0
16	290	7.8	280	4.1	110	2.7		3.1
17	290	7.6	260	---	110	2.4		3.1
18	270	7.4					2.0	3.0
19	270	7.4					1.6	2.9
20	280	7.0						2.8
21	290	6.6						2.7
22	300	6.3						2.7
23	310	5.8						2.6

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 16 minutes, manual operation.

Table 26

Akita, Japan (39.7°N, 140.1°E) April 1961

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	6.1						2.7
01	280	6.2						2.8
02	270	5.8						2.8
03	250	6.4						3.0
04	260	5.0						2.9
06	270	6.3			---	1.2		3.0
06	230	6.6	---	---	110	2.2		3.3
07	240	7.2	220	---	110	2.7		3.3
08	260	7.9	230	---	110	3.0		3.2
09	270	8.7	220	---	110	3.2		3.1
10	280	9.0	220	4.7	110	3.2		3.1
11	280	9.5	220	4.8	110	3.4		3.1
12	280	9.7	230	5.0	110	---		3.1
13	280	9.4	230	5.0	110	---		3.1
14	280	9.8	230	4.8	110	3.4		3.1
15	270	9.5	230	4.6	110	3.3		3.2
16	250	8.9	230	---	110	2.9		3.2
17	250	8.7	230	---	110	2.6		3.2
18	240	8.6			120	1.9	3.0	3.2
19	230	8.0					2.8	3.2
20	240	6.7					2.6	3.1
21	280	6.1					2.2	2.9
22	280	6.3					1.8	2.9
23	290	8.1						2.8

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 27

Tokyo, Japan (35.7°N, 139.5°E) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.9					1.8	2.8
01	260	6.0					1.6	2.8
02	250	6.0					1.9	2.9
03	230	5.3					1.6	2.9
04	270	4.7						2.8
05	260	5.0						2.9
06	220	6.5			110	2.0		3.4
07	230	7.2	220	---	100	2.6		3.4
08	240	8.0	220	---	100	3.0		3.3
09	260	8.7	210	---	100	3.1	4.2	3.0
10	260	9.8	200	4.8	100	3.3		3.0
11	280	10.4	210	---	100	3.4		3.0
12	270	11.0	210	---	100	3.5		3.1
13	270	10.3	220	---	100	3.3		3.1
14	260	10.5	220	4.8	100	3.3		3.1
15	250	10.0	220	---	100	3.1	3.6	3.2
16	240	9.3	220	---	100	2.9	3.6	3.2
17	230	8.8	---	---	100	2.4	3.6	3.2
18	230	8.8					3.6	3.2
19	230	7.8					3.4	3.2
20	220	6.8					3.1	3.0
21	270	6.2					2.6	2.8
22	280	6.1					2.1	2.7
23	280	6.0					2.2	2.8

Time: 135.0°E.
Sweep: 1.0 Mc to 18.5 Mc in 2 minutes.

Table 28

Yamagawa, Japan (31.2°N, 130.6°E) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	6.0					2.4	2.8
01	290	6.0					2.5	2.9
02	280	6.4					2.0	3.0
03	250	5.6					2.3	2.9
04	290	4.9					2.2	2.9
06	300	4.8					2.2	2.8
06	270	5.8					2.2	3.1
07	240	7.2	---	---	110	2.3	2.4	3.3
08	260	7.8	240	---	110	2.9	3.6	3.2
09	270	8.6	230	---	110	3.3	3.4	3.2
10	290	9.6	240	---	110	3.4	4.7	3.0
11	300	11.1	230	---	100	3.6	4.8	2.9
12	300	12.0	220	---	100	3.4	4.8	3.0
13	300	12.3	230	---	100	3.5	4.2	3.0
14	300	12.3	240	---	110	3.4	4.1	3.0
15	290	11.8	240	---	100	3.2	4.0	3.0
16	280	11.4	250	---	100	3.1	4.2	3.1
17	280	10.8	250	---	100	2.8	3.8	3.1
18	260	10.0	---	---	110	2.0	3.4	3.2
19	250	9.4					3.2	3.3
20	230	8.0					3.3	3.2
21	250	6.4					3.0	3.0
22	300	5.9					2.5	2.8
23	310	6.1					2.7	2.8

Time: 135.0°E.
Sweep: 1.0 Mc to 18.5 Mc in 15 minutes, manual operation.

Table 29

Guam I. (13.6°N, 144.9°E) April 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	10.7						2.8
01	270	10.0						3.1
02	230	8.4						3.3
03	230	7.2						3.2
04	240	6.4						3.3
05	240	4.6					2.3	3.3
06	260	4.3					3.6	3.0
07	250	7.5	---	---	120	2.2	3.3	3.3
08	250	8.8	230	---	120	2.7	3.2	3.0
09	(280)	10.0	220	---	110	3.1		2.7
10	(300)	10.6	220	(4.8)	110	3.3	3.5	2.6
11	(310)	10.6	200	(4.9)	110	(3.4)	3.6	2.4
12	(320)	10.9	200	(5.0)	110	(3.5)		2.4
13	(320)	11.5	200	4.9	110	(3.4)		2.5
14	320	12.2	200	(4.8)	110	3.4		2.6
15	(300)	13.0	230	---	110	(3.3)		2.7
16	300	13.8	240	---	110	3.1		2.8
17	(280)	14.0	250	---	120	2.7	3.4	2.8
18	260	13.9	---	---	130	(2.0)	3.8	2.9
19	280	13.2					2.6	2.8
20	300	12.1					2.2	2.7
21	300	11.4						2.7
22	300	10.6						2.7
23	300	10.2						2.7

Time: 150.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 30

Resolute Bay, Canada (74.7°N, 94.9°W) March 1961

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.4						2.9
01	260	4.2						2.9
02	260	4.2						2.9
03	270	3.8						2.9
04	270	3.9						2.9
05	260	4.2						3.0
06	250	4.0						3.1
07	260	4.1						3.0
08	250	3.8	---	---				3.1
09	260	4.4	230	---				3.0
10	260	4.9	220	3.4				3.0
11	280	5.0	230	---				3.0
12	300	4.8	230	(3.6)				3.0
13	300	4.9	250	3.7				3.0
14	290	5.0	230	3.6	---	---		2.9
15	300	4.7	240	3.6	---	---		3.0
16	280	4.8	230	3.2	---	---		3.0
17	260	5.0	240	---	---	---		3.0
18	250	4.8						3.0
19	260	4.8						3.0
20	260	4.2						2.9
21	250	4.6						2.9
22	260	4.4						2.9
23	260	3.8						3.0

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 31

Baker Lake, Canada (64.3°N, 96.0°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						2.9
01	300	3.8						2.8
02	310	3.3						2.7
03	320	3.4					3.0	2.9
04	330	3.0						2.8
05	340	(2.9)			---	---		(2.8)
06	340	3.2	---	---	130	2.4	3.8	(2.8)
07	310	3.8	---	---	150	2.6		2.9
08	300	4.0	300	---	130	2.5		2.9
09	300	4.0	---	---	130	2.8		3.0
10	390	4.8	280	4.0	120	3.0		2.9
11	500	4.9	290	4.0	120	3.0		2.8
12	480	4.9	300	3.9	120	3.1		2.8
13	400	5.3	290	3.8	130	3.0		2.8
14	420	5.8	290	3.8	120	2.9		2.8
15	400	5.4	290	3.9	120	2.8		2.8
16	380	5.5	300	3.6	120	2.8		2.8
17	310	5.2	290	3.2	130	2.7		2.9
18	310	5.0	---	---	150	2.2		2.9
19	300	4.8			140	2.3		3.0
20	300	4.5			---	1.9	2.0	2.8
21	300	4.4			---	---	3.8	(2.8)
22	300	3.6					3.8	2.9
23	300	3.9						2.8

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16 seconds.

Table 32

Narsarssuak, Greenland (61.2°N, 45.4°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(340)	(3.4)					5.0	(2.7)
01	(340)	(3.2)					4.2	---
02	(350)	(3.4)					4.1	(2.8)
03	---	(3.2)					4.4	(2.7)
04	---	---					4.5	(2.7)
06	---	---					4.4	---
06	290	(3.4)			---	---	4.3	(3.0)
07	300	4.0			(110)	---	3.8	3.1
08	290	4.4	---	---	(120)	---		3.0
09	320	4.9	240	---	(120)	---		3.0
10	340	5.2	230	(3.9)	(120)	(2.8)		3.0
11	340	5.7	230	(4.0)	(110)	---		2.9
12	360	5.9	240	(4.1)	(120)	---		2.8
13	340	5.7	<250	4.1	(110)	3.0		2.8
14	320	5.6	240	(3.8)	(110)	(2.8)		2.9
15	320	5.7	240	3.7	(120)	(2.8)		2.9
16	300	5.5	250	---	(120)	(2.4)	2.8	3.0
17	280	6.3	250	---	(120)	2.2	2.8	3.0
18	300	(4.8)	---	---	130	1.7	3.8	(2.9)
19	300	(4.3)					5.2	(3.0)
20	(320)	(3.9)					7.4	(2.8)
21	340	(4.0)					6.2	(2.7)
22	320	(3.6)					5.4	(2.7)
23	(300)	(3.3)					4.0	(2.6)

Time: 46.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16 seconds.

Table 33

Churchill, Canada (58.8°N, 94.2°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	(3.0)			---	---	7.0	(3.0)
01	(300)	(3.4)			---	---	6.4	(2.8)
02	300	3.0			---	---	4.3	(3.0)
03	(300)	(3.8)			120	3.0	4.2	(2.8)
04	(310)	(2.7)			120	2.5	4.0	(3.0)
05	(320)	---			120	3.0	3.4	---
06	---	(4.0)			120	3.2	3.8	(2.9)
07	(300)	(4.9)			110	3.9		(2.8)
08	300	4.2	---	---	110	3.0		3.0
09	310	4.7	230	3.7	110	3.1		2.9
10	320	5.0	230	4.0	110	3.0		2.8
11	370	5.0	220	4.0	110	3.0		2.8
12	340	6.0	220	4.1	110	3.0		2.8
13	370	6.0	230	4.0	110	3.1		2.8
14	360	6.0	230	4.0	110	2.8		2.8
15	360	5.4	230	4.0	110	2.6		2.8
16	300	6.0	230	3.7	110	2.5		2.9
17	290	5.8	240	3.5	120	2.3		2.9
18	280	5.3	230	---	110	2.7		3.0
19	280	5.3	---	---	110	3.0	3.2	2.9
20	280	4.6	---	---	110	2.9	6.0	(2.8)
21	320	4.0	---	---	120	2.4	6.3	2.8
22	280	3.7	---	---	130	2.8	7.4	2.9
23	280	4.0	---	---	120	2.4	6.1	3.0

Time: 90.0°W.
Sweep: 2.0 Mc to 16.0 Mc in 1 minute.

Table 34

Fort Chimo, Canada (58.1°N, 68.3°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(340)	---			---	---	4.8	---
01	(340)	---			---	---	4.7	---
02	340	(3.7)			---	---	4.1	---
03	---	---			130	---	4.0	---
04	---	---			---	---	4.3	---
06	---	---			---	---	4.8	---
06	(310)	(3.7)			---	---	4.0	---
07	320	4.6			---	---	4.0	3.0
08	300	4.3	---	---	---	---		2.9
09	300	5.0	260	3.8	110	---		2.9
10	380	5.2	250	4.0	120	---		2.7
11	370	5.6	250	4.0	---	---		2.7
12	400	5.8	250	4.0	120	---		2.6
13	370	5.7	260	4.0	---	---		2.7
14	350	6.2	260	3.8	120	2.8		2.8
15	340	5.8	260	3.8	120	2.7		2.7
16	300	6.0	280	3.5	130	2.7		2.8
17	300	5.0	---	---	130	2.3		2.8
18	300	4.9			130	3.0	4.0	2.7
19	300	(3.6)			130	2.6	4.5	2.8
20	290	4.1			---	---	4.4	---
21	300	(3.8)			---	---	5.0	---
22	320	(3.2)			---	---	6.0	---
23	(300)	---			---	---	4.8	---

Time: 76.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 35

Prince Rupert, Canada (54.3°N, 130.3°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.2			160	---		2.9
01	310	2.1			---	1.2		3.0
02	320	1.9			---	---	2.0	2.8
03	310	2.2			---	---	2.0	2.8
04	330	2.3			---	---		2.8
05	310	2.1			---	---		3.0
06	300	2.4			---	---		3.0
07	270	3.2			110	1.9		3.1
08	250	4.1	240	3.5	110	2.1		3.1
09	300	4.8	230	3.7	110	2.5		3.0
10	340	5.4	220	3.9	110	2.8		3.0
11	340	6.0	210	4.0	110	3.0		3.0
12	330	6.2	210	4.2	110	3.0		2.9
13	320	6.4	220	4.2	100	3.0		3.0
14	300	6.5	220	4.0	110	3.0		3.0
15	300	6.8	230	4.0	110	2.9		3.1
16	280	6.8	220	3.6	110	2.6		3.1
17	240	6.4	230	3.4	110	2.6		3.2
18	240	6.1			120	2.0		3.3
19	230	5.3			---	---		3.3
20	230	4.4			---	---		3.2
21	240	3.6			---	---		3.1
22	240	2.6			---	---		3.2
23	270	2.2						3.0

Time: 120.0°W.
Sweep: 0.6 Mc to 15.0 Mc in 16 seconds.

Table 36

Adak, Alaska (51.9°N, 176.6°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.2						2.7
01	310	3.0						2.7
02	300	3.1						2.7
03	300	3.0						2.7
04	300	3.1						2.7
05	280	3.1						2.8
06	260	3.8	---	---	---	---	1.4	3.1
07	240	6.1	240	---	120	2.0		3.3
08	230	6.0	220	---	110	2.6	2.2	3.3
09	250	7.0	220	3.8	110	2.5	2.7	3.2
10	260	8.0	220	4.1	110	2.8	3.0	3.2
11	260	8.7	210	4.1	110	---		3.2
12	260	8.8	220	4.3	110	---		3.2
13	260	8.6	220	4.2	110	---		3.2
14	260	8.3	230	---	110	---		3.2
15	240	7.4	230	---	110	---		3.3
16	240	7.3	240	---	120	2.4		3.3
17	230	6.8	---	---	120	---	1.6	3.3
18	220	6.0			---	---	1.3	3.2
19	230	6.2						3.1
20	230	4.4						3.1
21	240	4.0						3.0
22	260	3.6						2.8
23	280	3.3						2.8

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 37

Portage la Prairie, Canada (49.9°N, 98.3°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(290)	2.4						(2.9)
01	(320)	2.0					1.8	(2.8)
02	320	1.8					2.2	3.0
03	(300)	(1.8)					1.8	---
04	(310)	(1.7)						---
05	(310)	(1.6)					1.9	---
06	(370)	(2.3)			---	---	2.4	---
07	(260)	(3.0)			---	---		(3.0)
08	250	4.0	---	---	120	2.0		(3.2)
09	(270)	4.8	220	---	120	2.6		3.2
10	320	5.0	220	4.0	110	2.7		3.0
11	330	5.2	220	4.1	120	3.0		3.1
12	310	6.1	210	4.1	120	3.0		3.0
13	300	6.5	220	4.2	110	3.1		3.0
14	300	6.4	220	4.1	120	3.0		3.1
15	300	6.4	220	4.0	110	2.9		3.1
16	280	6.7	230	---	120	2.8		3.2
17	230	6.3	---	---	120	2.3		3.2
18	240	5.9			130	2.0		3.2
19	230	5.7						3.1
20	230	5.0						3.2
21	260	3.8						3.0
22	250	3.3						(3.0)
23	(280)	2.9						(2.8)

Time: 90.0°W.
Sweep: 1.0 Mc to 16.0 Mc in 2 minutes 30 seconds.

Table 38

St. John's, Newfoundland (47.6°N, 52.7°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.2						2.8
01	300	2.8						2.8
02	300	2.6						2.8
03	(300)	2.3						2.8
04	(280)	2.2						2.9
05	300	2.4						3.0
06	260	3.4			120	1.9		3.2
07	250	4.7	---	---	110	2.2		3.2
08	280	5.1	220	3.7	110	2.6		3.2
09	320	5.3	210	4.0	110	2.9		3.0
10	320	5.8	210	4.2	110	3.0		3.0
11	340	5.8	210	4.2	110	3.1		3.0
12	320	6.0	220	4.2	110	3.1		3.0
13	320	6.3	220	4.3	100	3.1		3.1
14	300	6.3	220	4.1	110	3.0		3.0
15	300	6.4	230	4.0	110	2.8		3.0
16	260	6.6	260	3.6	110	2.4		3.0
17	260	6.6	---	3.0	120	2.0		3.1
18	250	6.6			---	---		3.0
19	240	6.0						3.0
20	250	4.7						3.0
21	260	4.2						2.8
22	300	3.8						2.8
23	280	3.4						2.8

Time: 60.0°W.
Sweep: 1.2 Mc to 20.0 Mc, manual operation.

Table 39

Schwarzenburg, Switzerland (46.8°N, 7.3°E) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	3.3						
01	340	3.5						
02	330	3.3						
03	320	3.4						
04	305	3.2						
05	305	3.1						
06	300	3.1						
07	280	4.2			---	F		
08	260	5.5			115	2.1		
09	250	6.0	---	---	110	2.5		
10	250	7.0	240	4.3	110	2.8		
11	255	7.0	230	4.2	110	2.9		
12	300	7.6	220	4.4	110	3.0		
13	300	7.4	220	4.5	110	3.0		
14	250	7.4	235	4.4	110	3.0		
15	260	7.0	235	4.2	110	2.8		
16	260	7.5	---	---	110	2.6		
17	270	7.4			115	2.3		
18	280	7.0			130	1.9		
19	260	7.0			---	---		
20	260	5.3						
21	275	4.6						
22	300	3.8						
23	315	3.7						

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc, automatic operation.

Table 40

Ottawa, Canada (45.4°N, 75.7°W) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.9						2.7
01	300	2.5						2.8
02	300	2.3						2.8
03	300	2.4						2.8
04	290	2.4						2.8
05	(290)	2.4						2.9
06	270	2.9			---	---		3.0
07	250	4.0	---	---	120	2.3		3.1
08	250	5.0	220	3.8	110	2.6		3.1
09	290	5.4	210	3.9	110	2.9		3.1
10	320	5.8	200	4.2	110	3.0		3.0
11	310	6.0	200	4.4	110	3.2		3.0
12	320	6.0	210	4.4	110	3.2		2.9
13	310	6.3	220	4.4	110	3.1		3.0
14	300	6.4	220	4.3	110	3.1		3.0
15	290	6.5	220	4.2	110	2.9		3.0
16	280	6.7	230	3.9	110	2.7		3.0
17	250	6.8	230	---	120	2.4		3.0
18	240	6.5			---	---		3.0
19	230	5.8						3.0
20	240	5.0						3.0
21	250	3.9						2.9
22	270	3.1						2.8
23	290	3.2						2.8

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 41

Watheroo, W. Australia (30.3°S, 115.9°E) March 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.2					2.6	2.9
01	260	4.0					3.0	2.8
02	260	3.7					3.1	2.9
03	240	3.3					2.9	3.0
04	250	3.2					2.6	2.9
05	260	3.1					2.4	2.7
06	260	3.6	---	---		1.4	2.4	3.0
07	240	5.2	230	3.3		2.1	2.4	3.4
08	250	6.6	220	4.0		2.6	3.3	3.5
09	270	7.0	220	4.4		3.0	3.8	3.3
10	280	7.4	210	4.5		3.1	3.6	3.2
11	290	7.8	210	4.9		3.2	3.9	3.1
12	310	8.0	210	4.8		3.3	3.8	3.0
13	300	8.5	230	4.8		3.3	3.9	3.2
14	290	8.4	230	4.7		3.3	3.6	3.1
15	290	8.3	230	4.5		3.2	3.7	3.2
16	270	7.6	230	4.2		2.9	3.4	3.2
17	260	7.2	230	3.5		2.5	3.3	3.3
18	230	6.6				1.8	2.9	3.3
19	210	6.0					2.8	3.2
20	230	5.4					2.8	3.0
21	260	4.8					2.5	2.9
22	280	4.2					2.9	2.8
23	280	4.0					2.4	2.9

Time: 120.0°E.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 42

Resolute Bay, Canada (74.7°N, 94.9°W) February 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.6						2.9
01	260	3.6						2.9
02	260	3.6						2.9
03	260	3.7						2.9
04	280	3.7						3.0
05	290	3.0						2.8
06	280	3.4						2.8
07	290	3.3						2.8
08	280	3.7						2.9
09	250	4.0						2.9
10	240	4.2						3.0
11	240	4.6						3.0
12	240	4.8						3.0
13	250	4.8						2.9
14	250	5.2			---	---		3.0
15	230	5.0						3.0
16	230	4.5						3.0
17	240	4.2						2.9
18	260	4.3						2.9
19	250	4.6						2.8
20	260	4.1						2.9
21	250	4.3						2.8
22	260	3.8						2.8
23	260	3.8						2.9

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 43

Narsarssuak, Greenland (61.2°N, 45.4°W) February 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<350	(3.1)					5.0	(2.7)
01	340	(3.4)					5.2	(2.8)
02	---	---					6.8	---
03	---	---					4.5	---
04	---	---					4.3	---
05	---	---					4.3	---
06	(340)	(3.1)					3.8	(2.9)
07	320	(2.8)			---	---	3.4	(3.0)
08	290	3.8			---	-A-		(3.2)
09	270	5.0	---	---	---	---		3.1
10	270	5.4	---	---	---	---		3.2
11	300	5.8	250	---	---	---		3.1
12	290	6.0	250	---	---	---		3.0
13	280	6.3	240	---	---	---		3.1
14	280	6.0	250	---	---	---		3.1
15	290	5.6	260	---	---	---		3.0
16	320	4.9	---	---	(130)	(2.7)		3.0
17	340	(4.4)			---	---	3.7	(2.8)
18	340	(4.5)					6.0	(2.8)
19	(370)	(4.4)					6.8	(2.8)
20	(340)	(4.5)					6.1	(2.7)
21	(360)	(4.2)					4.9	(2.6)
22	(330)	(3.6)					6.8	(2.7)
23	340	(3.2)					6.4	(2.8)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 44

Fort Chimo, Canada (58.1°N, 68.3°W) February 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	325	(3.0)			---	---	5.9	---
01	(290)	---			---	---	4.3	---
02	---	---			120	3.6	4.0	---
03	---	---			125	3.2	3.8	---
04	---	---			120	3.2	4.0	---
05	---	(3.8)			120	3.7	4.1	---
06	---	---			---	---	4.0	---
07	300	(3.8)			---	---		(2.9)
08	280	4.8			---	---		2.9
09	280	5.2	---	---	125	2.8		2.9
10	300	5.6	---	---	---	---		2.9
11	320	6.1	270	---	---	---		2.8
12	300	6.4	260	3.9	---	---		2.7
13	300	6.5	260	---	125	---		2.8
14	300	7.0	290	---	140	---		2.8
15	290	5.2	---	---	---	---		2.8
16	300	5.0	---	---	130	2.6		2.8
17	320	3.9			130	---	4.2	(2.6)
18	310	3.9			130	2.7	4.2	(2.6)
19	380	3.6			130	3.0	4.3	(2.5)
20	320	(3.8)			---	---	4.7	---
21	(300)	(3.9)			---	---	4.1	---
22	(310)	---			---	---	5.0	---
23	325	(3.4)			---	---	5.4	---

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 45

Narsarssuak, Greenland (61.2°N, 45.4°W) January 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					5.2	---
01	---	---					4.2	---
02	---	---					5.2	---
03	(350)	(3.4)					4.4	(2.7)
04	330	(3.5)					5.1	(2.9)
05	310	(2.8)					4.0	(3.0)
06	300	(2.7)					2.9	3.0
07	(290)	(2.4)					3.5	(3.0)
08	260	(2.5)			---	---		(3.0)
09	250	4.6			120	2.1		(3.3)
10	240	5.8	---	---	---	---		3.3
11	250	6.6	---	---	---	---		3.3
12	250	6.6	---	---	---	---		3.3
13	250	6.7	260	---	---	---		3.2
14	250	6.2	---	---	(130)	---		3.2
15	240	5.4			(130)	---	2.8	3.2
16	260	(4.9)			---	---	2.6	(3.0)
17	300	(4.2)					5.1	(3.0)
18	(340)	(3.8)					6.9	(2.7)
19	320	(3.6)					7.3	(2.8)
20	(300)	(4.1)					6.6	(2.9)
21	(300)	(3.4)					6.8	(2.7)
22	330	(3.2)					7.4	(2.8)
23	---	---					7.5	---

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 46

Narsarssuak, Greenland (61.2°N, 45.4°W) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	350	(3.2)					6.4	(2.7)
01	---	(3.2)					5.3	(2.8)
02	---	(3.7)			---	---	4.9	(2.8)
03	---	(3.4)			---	---	6.4	---
04	(310)	(3.4)			---	---	5.0	(2.8)
05	280	(3.2)			---	---	4.0	(3.0)
06	(280)	(2.7)			---	---	3.9	(3.0)
07	(310)	(2.4)			---	---	3.0	(3.0)
08	(280)	(2.9)			---	---	3.7	(3.0)
09	240	4.2			---	---		3.2
10	250	5.5			---	---		3.3
11	240	6.0			---	---		3.3
12	240	6.5	---	---	---	---		3.3
13	240	6.4			---	---		3.3
14	240	6.0			---	---		3.2
15	260	(5.6)			---	---	3.6	(3.2)
16	270	(3.2)			---	---	3.2	(2.8)
17	(300)	(3.9)			---	---	4.0	(2.7)
18	---	(3.4)			---	---	5.0	(2.8)
19	---	(3.0)			---	---	7.2	(2.7)
20	---	(3.0)			---	---	6.1	(2.7)
21	---	---			---	---	6.6	---
22	(360)	---			---	---	5.8	---
23	---	---			---	---	6.2	---

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 47

Fribourg, Germany (48.1°N, 7.8°E) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.4					2.1	2.7
01	280	3.3						2.8
02	290	3.4						2.7
03	295	3.3						2.7
04	280	2.9						2.8
05	270	2.8						2.9
06	260	2.8						3.0
07	250	2.9						3.0
08	230	5.6			---	E	2.4	3.3
09	230	6.3	210	2.9	131	2.0	2.3	3.3
10	240	7.3	230	3.2	125	2.4	3.2	3.4
11	240	(7.4)	230	3.2	125	2.7	2.1	3.4
12	240	7.4	220	3.2	128	2.6	2.3	3.4
13	242	7.4	240	3.4	128	2.6		3.3
14	240	7.2	230	2.9	129	2.4		3.3
15	240	7.0	245	2.8	131	2.0	2.4	3.3
16	225	6.1			---	---	2.0	3.3
17	220	4.8					2.6	3.2
18	240	3.9					3.1	3.1
19	260	3.3					2.5	3.0
20	270	3.1					2.4	2.9
21	280	3.0					2.4	2.8
22	300	3.2						2.7
23	300	3.4						2.7

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 48

Dakar, French West Africa (14.6°N, 17.4°W) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	>8.4						
01	245	>9.2						
02	230	>7.8						
03	225	5.5						
04	235	4.1						
05	240	3.4					2.0	
06	250	3.8					1.8	
07	240	7.3			118	2.1	2.6	
08	258	10.2	220	---	105	2.8	4.5	
09	255	11.4	208	4.6	105	3.1	4.2	
10	270	11.9	200	4.6	100	3.4	6.0	
11	280	12.8	200	4.8	100	3.6	6.0	
12	295	12.8	200	4.8	100	3.6	6.2	
13	290	13.0	200	4.6	100	3.5	4.6	
14	285	12.9	210	4.7	100	3.5	6.1	
15	280	12.2	218	---	100	3.1	4.7	
16	270	12.2	230	---	105	2.7	3.9	
17	250	12.7	---	---	---	2.0	4.0	
18	250	12.3			---	---	3.8	
19	250	11.5					3.4	
20	250	11.8					3.0	
21	250	11.6					2.8	
22	250	11.6					3.0	
23	240	10.7						

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 49

Brisbane, Australia (27.5°S, 153.0°E) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	7.4					4.0	2.9
01	240	7.1					4.0	3.0
02	240	6.9					3.9	2.9
03	250	5.4					3.5	2.8
04	250	4.8			---	E	2.8	2.9
05	250	4.7	---	---	140	1.7	1.6	3.1
06	240	5.8	240	4.0	110	2.4		3.2
07	300	6.6	230	4.4	105	2.9	3.8	3.0
08	300	7.0	220	4.5	100	3.2	4.1	3.0
09	300	7.8	200	4.8	100	3.6	4.2	2.9
10	320	8.4	200	4.9	100	3.5	4.4	2.8
11	330	8.4	200	4.9	110	3.6	4.4	2.8
12	330	8.4	200	4.9	110	3.7	4.2	2.9
13	320	8.5	200	4.8	100	3.7	4.0	2.9
14	310	8.6	220	4.7	105	3.6	4.0	2.9
15	300	8.2	220	4.7	100	3.4		2.9
16	300	8.2	220	4.5	100	3.1		3.0
17	270	7.6	230	4.0	110	2.7		3.0
18	250	7.4	---	---	---	E	4.0	2.9
19	260	7.4					2.7	2.8
20	280	7.3					3.2	2.7
21	300	7.5					4.1	2.7
22	290	7.6					4.4	2.8
23	270	7.6					4.7	2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 50

Canberra, Australia (35.3°S, 149.0°E) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	6.5					4.0	2.9
01	240	6.4					3.5	3.0
02	240	5.6					3.2	3.0
03	260	4.7					3.3	3.0
04	250	4.1					2.8	3.0
05	250	4.3	---	---	140	1.6	2.6	3.1
06	235	5.3	---	---	110	2.4	2.5	3.1
07	295	5.7	230	4.4	100	2.9	4.0	3.0
08	320	6.6	210	4.5	100	3.3	5.0	3.0
09	340	6.9	210	4.8	100	3.5	5.2	3.0
10	320	7.0	205	4.8	100	3.6	5.5	3.0
11	340	7.1	200	5.0	100	3.5	5.5	3.0
12	340	6.9	200	4.8	100	3.5	5.4	3.0
13	340	7.2	200	4.8	100	(3.5)	5.2	3.0
14	320	7.1	210	4.8	100	3.5	4.7	3.0
15	310	7.3	215	4.6	100	3.5		3.0
16	310	7.0	210	4.5	100	3.3	3.8	3.0
17	290	7.0	220	4.2	100	2.9		3.1
18	260	6.7	240	---	110	2.4	4.1	3.0
19	250	7.0	---	---	---	(1.8)	3.3	2.9
20	270	7.1					3.5	2.9
21	280	7.0					3.8	2.8
22	285	7.0					4.0	2.8
23	280	7.0					3.7	2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 51

Hobart, Tasmania (42.8°S, 147.4°E) December 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	6.0						2.9
01	250	5.5						2.9
02	240	4.4					2.9	3.0
03	250	3.8					2.5	3.0
04	250	3.5			---	E	2.7	3.0
05	250	4.0	---	---	120	1.9	2.5	3.2
06	230	4.6	220	3.9	100	2.4		3.2
07	320	5.0	200	4.0	90	2.8	3.4	3.1
08	350	5.5	200	4.5	90	3.1	3.5	3.0
09	350	5.6	200	4.6	90	3.4	4.0	3.0
10	330	6.5	200	4.6	90	3.5	4.1	3.0
11	340	6.5	200	4.9	90	3.5	4.5	3.1
12	340	6.8	200	4.9	90	3.5		3.0
13	330	6.6	200	4.7	90	3.5		3.0
14	350	6.5	200	4.9	90	3.4		2.9
15	320	6.5	200	4.5	90	3.4		3.0
16	300	6.7	200	4.5	90	3.2		3.0
17	290	6.6	210	4.3	90	3.0		3.0
18	260	6.6	210	3.7	100	2.5	2.8	3.1
19	240	7.0			100	2.0	3.8	3.1
20	240	7.0					3.5	3.1
21	240	7.0					3.4	2.9
22	250	6.5					3.5	2.9
23	250	6.1						2.9

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 52

Fribourg, Germany (48.1°N, 7.8°E) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.4						2.6
01	300	3.4						2.7
02	300	3.3						2.7
03	300	3.2						2.7
04	285	3.0						2.8
05	275	2.8						2.9
06	260	2.5						2.9
07	250	4.4			---	---		3.0
08	240	6.5	---	---	135	1.9	2.5	3.3
09	240	7.2	---	---	129	2.3	2.9	3.2
10	235	8.0	240	3.4	121	2.7	3.2	3.3
11	230	8.0	238	3.5	121	2.7	2.1	3.3
12	240	8.4	235	3.3	122	2.8	2.5	3.2
13	240	8.0	240	3.1	125	2.7		3.3
14	240	8.0	250	2.8	128	2.5	2.4	3.2
15	240	7.9	---	---	131	2.1	2.4	3.3
16	230	7.0			---	1.8	2.7	3.2
17	230	6.1					2.8	3.1
18	240	5.5					2.4	3.1
19	245	4.7						3.1
20	260	3.6						3.0
21	290	3.3						2.8
22	308	3.4						2.7
23	308	3.3						2.6

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 53

Dakar, French West Africa (14.6°N, 17.4°W) November 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	>240	10.0						
01	240	(9.6)						
02	222	(8.9)						
03	210	4.9						
04	235	4.0						
05	262	3.2					1.7	
06	260	4.6			---	1.3	2.1	
07	242	8.6	---	---	110	2.3		
08	250	11.2	220	---	110	(2.9)	4.0	
09	265	12.9	208	---	105	3.2	5.4	
10	265	13.7	200	4.5	105	3.5	4.4	
11	>272	14.0	200	4.6	105	3.6	4.8	
12	285	14.0	200	4.8	100	3.6	4.7	
13	280	14.0	200	4.0	105	(3.6)	4.6	
14	280	13.5	205	4.1	105	3.3	5.4	
15	(275)	13.5	225	---	105	3.0	5.1	
16	258	13.9	230	---	---	2.7	4.4	
17	250	14.0	---	---	130	1.9	4.0	
18	258	13.6					3.8	
19	260	13.4					3.3	
20	>240	11.9					3.0	
21	250	12.6					2.9	
22	250	11.7						
23	250	(10.3)						

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 54

Dakar, French West Africa (14.6°N, 17.4°W) October 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	(12.2)						
01	250	(11.4)						
02	225	(7.2)						
03	240	6.3					1.6	
04	270	4.1					2.4	
05	262	3.7					2.8	
06	250	6.0			---	---	3.1	
07	250	9.5	235	---	115	2.4		
08	255	11.2	232	---	110	3.1		
09	275	12.6	225	---	110	3.4		
10	275	13.8	210	---	110	3.6		
11	295	13.8	210	---	110	3.8		
12	305	14.1	---	---	110	---		
13	305	14.8	---	---	110	---	3.9	
14	295	15.3	205	---	110	3.5		
15	300	15.2	225	---	110	3.2		
16	---	15.1	240	---	110	2.8	3.2	
17	250	14.6	250	---	120	2.0	3.0	
18	270	14.4					3.2	
19	300	14.3						
20	265	14.0						
21	260	(13.8)						
22	275	(12.8)						
23	275	(13.2)						

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 55

Domont, France (49.0°N, 2.3°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.7						2.8
01	255	3.5						2.9
02	275	3.4						2.9
03	270	3.4					2.5	2.8
04	250	3.2					2.7	3.0
05	245	3.0	210	---	---	E	2.5	3.1
05	230	4.0	210	---	100	1.5	2.8	3.4
07	230	4.5	200	---	100	2.1	3.0	3.6
08	240	5.3	200	3.9	100	2.7	3.2	3.4
09	280	5.5	200	4.2	100	2.8	3.2	3.2
10	280	5.1	190	4.2	100	3.0		3.4
11	270	5.3	190	4.5	100	3.1	3.2	3.2
12	270	6.2	190	4.4	100	3.2		3.2
13	250	5.3	190	4.4	90	3.1		3.2
14	260	5.3	200	4.3	100	3.0		3.2
15	250	5.2	200	---	90	2.8		3.2
18	250	6.4	210	---	100	2.5	2.8	3.2
17	250	5.5	210	---	100	2.0	2.8	3.2
18	220	7.0	220	---	100	1.6	3.0	3.2
19	210	7.2	---	---	---	E	3.0	3.2
20	200	6.5					2.8	3.2
21	210	5.3					2.4	3.2
22	235	4.3						3.0
23	270	3.7						2.9

Time: 0.0°.
Sweep: 1.5 Mc to 16.0 Mc in 1 minute 30 seconds.

Table 56

Fribourg, Germany (48.1°N, 7.8°E) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.7					2.3	2.7
01	305	3.6					2.4	2.8
02	312	3.5					2.4	2.7
03	300	3.5					2.1	2.8
04	290	3.4					2.3	2.8
05	270	3.2					2.5	3.0
05	250	4.2	---	---	129	1.8	2.6	3.2
07	252	4.8	228	3.5	119	2.2	3.2	3.2
08	278	6.5	225	4.0	112	2.6	3.5	3.2
09	302	5.0	225	4.3	111	2.9	3.8	3.1
10	295	5.7	220	4.5	110	3.1	3.8	3.1
11	290	5.2	210	4.5	111	3.2	4.0	3.2
12	305	5.6	210	4.7	109	3.2	4.1	3.1
13	300	5.5	210	4.6	111	3.2	3.8	3.1
14	300	5.5	220	4.5	109	3.1	3.4	3.1
15	295	5.5	225	4.2	110	2.9	2.8	3.1
15	280	5.5	240	3.8	113	2.5	2.5	3.1
17	258	5.5	260	---	121	2.3	3.0	3.1
18	260	7.3			---	---	3.2	3.1
19	250	5.9					3.0	3.0
20	246	(5.7)					2.4	3.1
21	245	5.5					2.4	3.0
22	255	4.1					2.4	2.9
23	290	3.9					2.3	2.7

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 67

Dakar, French West Africa (14.5°N, 17.4°W) September 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	5.7						
01	290	6.3					2.4	
02	250	4.5					2.2	
03	250	4.5					2.0	
04	250	3.4						
05	250	3.3					1.8	
05	240	5.5			155	1.7	2.5	
07	240	7.2	225	---	120	2.5		
08	265	7.8	220	---	118	3.0		
09	290	8.5	225	---	115	3.4		
10	310	10.2	215	5.1	110	3.6		
11	315	12.0	200	5.2	110	---		
12	330	12.7	---	5.2	110	3.8		
13	365	13.8	---	5.3	110	3.7		
14	330	14.4	---	4.9	115	3.5		
15	315	15.7	220	---	115	3.3		
15	295	15.3	330	---	115	3.0		
17	265	14.0	240	---	120	2.5	3.1	
18	250	13.6			---	---	3.4	
19	270	11.5					3.1	
20	285	9.9						
21	305	7.8						
22	330	5.8						
23	330	5.2						

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 58

Dakar, French West Africa (14.5°N, 17.4°W) July 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	350	4.5					1.7	
01	350	---					2.4	
02	350	(4.1)					2.4	
03	350	---					2.2	
04	325	(4.5)					2.4	
05	290	---					2.6	
05	256	5.9			---	1.8	4.1	
07	(250)	7.0	245	---	---	---	4.3	
08	282	7.5	235	---	---	---	4.5	
09	(350)	7.8	220	---	---	---	4.7	
10	(360)	9.0	---	5.5	---	---	5.0	
11	375	10.2	---	5.4	---	---	5.1	
12	418	10.8	---	5.5	---	---	4.9	
13	385	11.9	---	5.6	---	4.0	5.0	
14	385	12.3	---	5.2	---	---	5.2	
15	365	13.5	210	6.1	118	---	5.0	
15	350	13.0	245	---	120	3.3	4.0	
17	330	12.8	250	---	121	2.8	4.0	
18	275	12.4	255	---	130	2.2	3.5	
19	280	10.5					3.0	
20	342	7.4					2.2	
21	390	6.2					2.5	
22	380	5.4					1.7	
23	360	6.5					1.8	

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 59

Reykjavik, Iceland (64.1°N, 21.8°W) February 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	390	5.6					4.4	2.4
01	380	5.2					4.4	2.5
02	370	(5.7)					4.4	2.5
03	350	5.0					3.9	2.5
04	360	4.8					2.7	2.5
05	340	4.8					1.4	2.5
06	300	4.8						2.7
07	300	3.9						2.7
08	290	4.2						2.9
09	260	5.6	---	---				3.1
10	250	6.5	---	---				3.1
11	260	7.5	---	---				3.1
12	260	8.0	250	---				3.1
13	270	8.2	260	---				3.0
14	260	8.5	260	---				3.0
15	260	8.1	---	---				3.0
16	260	7.8	---	---				3.0
17	260	7.4						3.0
18	280	5.2					1.8	2.8
19	310	(6.0)					1.9	2.7
20	320	5.2					3.5	2.6
21	350	5.4					3.9	2.6
22	360	5.8					3.8	2.5
23	370	5.4					3.8	2.6

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 60

Reykjavik, Iceland (64.1°N, 21.8°W) January 1950

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	390	4.5					4.9	(2.5)
01	360	5.0					4.7	(2.6)
02	400	(4.6)					5.0	(2.6)
03	380	5.0					4.5	(2.5)
04	340	5.0					4.4	(2.5)
05	320	5.1					3.8	(2.5)
06	300	4.5					3.2	(2.8)
07	290	4.0					1.7	2.8
08	280	3.2					1.3	2.7
09	250	4.3						2.9
10	260	5.2						3.0
11	250	7.8						3.1
12	250	8.5						3.2
13	250	9.3						3.2
14	250	8.8						3.1
15	240	7.8						3.2
15	260	5.5						3.0
17	290	5.4					2.0	(2.8)
18	300	5.4					3.5	(2.8)
19	310	4.8					4.5	(2.7)
20	340	(4.9)					4.5	(2.5)
21	350	5.3					4.5	(2.5)
22	360	4.9					4.4	(2.6)
23	370	(5.1)					4.6	(2.5)

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Form adopted June 1946

TABLE 61

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit), June (Month), 1951

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., W.A.P., A.H.M.

Calculated by: A.H.M., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(330)A	280	(330)A	(290)S	(260)S	250	250	G	400	390	A	A	370	340	[360]A	390	400	310	300	[260]B	230	A	A	A
2	(300)A	310	300	250	(280)S	270	[310]A	350	400	340	330	330	[350]A	370	340	350	330	300	270	270	260	230H	230H	270
3	280	280	270	(300)S	(290)S	230	L	G	350	[380]A	410	[400]A	380	360	400	350	330	300	290	260H	230	230	260	280
4	300	280	280	270	A	A	A	340	420	370	370	360	360	370	360	300	300	290	250	240	230	250	240	(250)A
5	250	260	260	290	280	260	(280)L	310	350	[360]A	360	340	340	330	320	310	310	[290]A	(280)A	[270]A	(270)A	260	250	(270)A
6	290	(310)A	[300]A	300K	[290]K	280K	GK	GK	GK	GK	AK	AK	AK	AK	AK	460K	390K	340K	330K	270K	260K	270	A	A
7	310	(300)A	300	280	[270]A	270	[290]L	300	380	380	430	420	370	400H	430	430	440	350	320	260	250	280	280	290
8	280	260	250	240	250	220H	270H	290	450	[410]A	380H	(360)H	480H	M	M	M	350	M	M	M	M	M	M	M
9	M	M	M	M	M	M	M	M	M	M	M	400	460	[440]M	410	[360]M	320	M	A	280	250	M	M	290
10	[280]M	280	270	M	M	M	M	M	330	320	M	M	M	M	M	350	330	310	300	260	260	250	260	260
11	290	320	300	280	290	300	280	(300)A	(300)A	A	A	400	440	360	350	330	340	A	A	270	260	250	280	270
12	280	(270)S	270	(270)A	(310)A	280	(300)A	420	460	G	450	[440]A	420H	420	430	370	370	(340)L	340	270	280	[280]A	280	250
13	A	A	270	290	300	A	L	330	410H	420H	430H	310	360	340	350	350	340	300	(300)A	260	230H	(280)A	260	280
14	(270)A	(320)A	320	(270)A	260	230	230H	320	330	370H	340	370H	360	360	360	420	330	350	330	260	220	250	260	220
15	240	290	330	330	(310)S	310	430	A	G	G	G	G	460	380	400	420	420	340	A	A	260	280	A	A
16	300	A	A	A	A	A	380	A	G	G	A	A	A	A	A	450	420	340	300	270	270	250	A	B
17	260	280	290	(300)B	(320)A	(290)A	300	310	370H	[370]L	370	270	340	400	400K	370K	320K	340K	400K	350K	300HK	300K	300HK	[320]BK
18	350K	(340)HK	350K	(380)BK	360K	300K	(430)HK	510HK	GK	500K	GK	GK	GK	480K	GK	450K	410HK	390K	350K	(300)AK	AK	AK	(310)AK	(360)AK
19	[340]KA	320K	300K	(380)BK	(360)SK	290K	GK	GK	GK	GK	570K	GK	GK	GK	GK	530K	AK	AK	AK	AK	(300)AK	(320)A	A	A
20	(350)A	[320]A	(300)A	(320)AH	[300]A	(280)A	290H	330H	[360]A	400	[400]A	410	[380]A	350	[350]A	360	330	300	(280)A	250	230	220	220	240
21	250	260	290	290	270	290	300	(350)L	350H	(360)AH	500	390	350	400	340	310	310	300	300	250	250	240	230	230
22	(300)A	250	290	260	230	270	270H	(260)H	310H	250	300	220H	330H	330	340	370	330	300	290	250	(230)A	[260]A	280	260
23	250S	260	200	260	280	240H	340	330H	320	300	380	350H	350	370	410	400H	390	320	(300)A	240	[240]A	240	260	230
24	270	250	250	270	260	240	A	L	280	300	[330]A	360	A	A	340	340	310	290	270	(270)A	[270]A	(280)A	(270)A	250
25	250	(250)A	(280)A	(300)A	300	(330)AH	650H	520	600	500	[440]A	(370)A	430	430H	G	510	390	400	300	250	240	270	260	280
26	(300)A	330	340	280	290	A	G	G	G	490H	470	390	(420)H	540	450	430	420	400	320	260H	(250)A	(270)A	250	(280)S
27	280	280S	300A	(300)A	(290)A	250H	[310]H	(380)H	[400]M	420	[400]A	[400]A	320H	380	450	340	330	(340)A	320	(310)A	240	(230)A	230	240
28	280	290	290	290	270	250	(270)A	(420)A	280	410H	400	320	350	440	350	380	330	310	290	270	(250)A	260	260	A
29	A	(300)A	[300]A	(300)A	270	250	310	(320)A	350	(300)A	A	A	320	340	350	380	350	320	260H	(250)A	210H	[260]A	(300)A	(290)A
30	270H	250H	(280)S	(250)S	260	290	270	360	390	A	G	500H	[440]A	390	[400]B	400	340	300	280	250	(240)A	(260)A	(300)A	[300]A
31																								
Median	280	280	290	290	280	270	300	350	390	390	400	390	370	380	360	370	340	320	300	260	250	260	260	270
Count	27	27	28	27	26	24	24	25	29	27	23	25	26	25	26	29	29	26	25	27	18	26	23	23

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 62

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), June (Month), 1951

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: McC., W.A.P., A.H.M.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

Calculated by: A.H.M., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(4.6)A	(4.4)JS	(4.0)JA	(3.5)JS	(3.3)JS	(3.9)JS	(4.4)S	<4.2G	5.0	5.7	[5.8]A	[5.8]A	6.0JB	5.7	[5.6]A	5.5	6.0	6.3	5.8F	5.9JA	6.6	6.2JA	(5.4)A	(4.6)SH
2	4.1	3.5F	3.9V	3.8	3.0	3.2	[3.8]A	4.5	5.0F	6.2	6.0F	6.2F	(5.8)A	6.2F	6.8	6.4	7.0	7.6	7.6S	(7.4)JF	7.4	7.4H	5.2JH	4.6
3	4.2	3.8S	3.5	2.7JS	2.4JS	3.2	4.1JS	<4.3G	5.0	[5.3]A	5.5	5.6	6.0	5.8	5.8	6.2	6.4	6.7	6.9S	7.5H	6.3F	5.9JS	(5.3)SF	(5.4)JS
4	4.8JS	(4.4)JS	3.9JS	3.4SF	[3.0]A	(3.3)A	4.2	5.0	5.1	5.8JS	5.8	6.2	6.1	6.5	6.7	6.9	6.8	7.0	7.2	6.8	6.6	6.4S	(6.0)JS	4.8SF
5	4.7	3.9	3.1JS	2.8JS	2.7	3.5	4.7	5.5	5.8	[6.2]A	6.2	6.4	6.3	7.0	7.0	6.8	6.7	6.4	7.4	[7.3]A	7.2	7.4	6.8	5.6F
6	5.2SF	4.5F	3.7F	3.0FK	K2.2JS	K2.7JS	<3.3G	<3.8GK	<4.0GK	<4.3GK	A K	A K	A K	A K	A K	5.3K	5.4K	5.6K	5.3PK	5.1PK	5.4PK	5.8P	5.4F	(5.3)PA
7	5.6F	4.5F	4.7F	4.4JF	4.0	4.2	[4.5]M	(5.0)JB	5.6	6.1	5.8	6.2	6.0JB	5.8H	5.7	5.4	5.5	5.8	6.0	6.2S	6.2	6.2	6.0S	5.8
8	5.4	5.3	5.0	4.2	3.7JS	3.5H	4.0H	4.8	5.3	[5.6]A	6.0H	(5.8)H	6.7H	M	M	M	M	M	M	M	M	M	5.7	M
9	M	5.2	M	M	M	M	M	M	M	M	M	6.2	6.2	[6.4]M	6.5	[6.4]M	6.5	6.6	6.4	6.5	6.4	6.6	6.2	6.0
10	5.2	4.8	4.8	M	M	M	5.7	[6.2]M	7.0	7.4	7.4	7.5	7.4	7.2	7.2	7.4	7.5	7.8	7.8	8.2	7.6	7.4	6.4	5.4
11	4.8	4.8	4.9	4.6JS	4.2	4.5F	5.4JF	5.7	6.1	6.2	[6.6]A	6.8	6.4	7.4	7.1	7.7	(7.2)A	[7.3]A	7.4	7.6	7.6	7.0	6.1	5.9
12	6.0	5.5P	5.0V	3.7P	3.2	3.2	4.5ZF	4.5JF	5.1	<4.5G	5.6	[5.6]A	5.6H	6.1	6.1	6.7	6.7	6.8	6.8	6.7	7.0	6.9JS	6.4	5.9
13	5.3	4.9F	(4.4)FS	4.1	(3.9)JS	(4.0)JF	4.9	5.6	(5.8)H	6.2H	6.8H	8.0	7.2	7.4	7.0F	7.4	7.8	7.8F	7.5	7.6	7.3H	7.2JS	6.6F	6.2F
14	6.0F	5.2F	(5.2)SF	4.8F	(4.5)S	4.4F	(5.4)SH	6.4	6.8	6.4H	7.0	7.4H	7.6	7.4	7.6	7.2	8.8	8.4	8.8	9.0	9.0	8.8	7.8	(6.0)JS
15	5.2	4.5	3.7	3.4	3.3HS	3.5	4.3	5.1	<4.4G	<4.4G	<4.6G	<4.7G	6.1	6.4	6.1	6.0	6.4	6.4	6.1	6.4	6.1P	7.0	6.6	(5.5)A
16	5.0	4.4P	[3.4]A	A	A	3.2	4.6	[5.0]A	<4.8G	<4.8G	A	A	A	A	A	6.0	6.2	6.6	6.8	7.0	7.3F	7.2PF	6.3	6.4
17	5.6	5.0F	4.4F	4.0	3.7F	4.4	5.3	6.2	6.2H	5.8	6.5	7.0	7.0	7.0	7.6K	7.8K	8.0K	7.9K	8.1K	9.2K	K8.6FH	8.2K	7.2HK	[5.0]BK
18	K(2.8)JF	K(2.7)FH	K(2.4)BF	K(2.4)JF	K(2.5)SF	3.3FK	K(4.0)FH	K(4.6)BH	<4.2GK	5.1K	<4.5GK	<4.6GK	<4.6GK	5.2K	<4.7GK	5.5K	5.6HK	5.7K	5.6K	6.0SK	K(6.2)JA	6.4HK	5.8FK	5.0K
19	4.0FK	3.5SK	K2.9JF	K2.5JB	K2.6JS	3.4FK	<3.4GK	<3.8GK	<4.0GK	<4.3GK	4.8K	<4.5GK	<4.6GK	<4.6GH	<4.5GK	5.0K	A K	A K	A K	5.8K	6.4SK	6.6S	(6.2)SA	(5.9)SA
20	5.0	[4.6]A	(4.1)SA	(3.8)SH	[3.4]A	3.7JS	5.0JH	5.4H	[5.4]A	5.4	[5.7]A	6.0	[6.1]A	(6.1)A	[6.2]A	6.6	6.8	7.0	7.3	8.0S	8.2	7.6	7.2	5.6FS
21	(5.4)S	4.9	4.2	3.9SF	3.8SF	4.0	4.6	5.0	5.6H	5.2H	5.6	6.0	6.2	6.2	6.6	6.7	6.2F	6.4	6.8S	7.0SF	(7.2)S	7.0SF	(6.6)JS	(5.6)SF
22	5.2F	5.4	5.0	4.3FS	4.4	(4.8)PF	(5.8)H	[6.3]MH	6.8JH	(7.4)JB	7.0	(7.0)H	7.1H	6.4F	6.4	6.5	6.6	7.2	7.4	7.6	6.6F	6.0P	6.0	5.3F
23	5.2SF	4.9F	[4.2]S	3.8S	3.7F	3.9H	4.8	5.1H	5.8	5.9	5.8	6.1H	6.0P	5.8	5.6F	5.6H	6.0	6.4	6.8	6.8	6.6JA	6.2JS	6.0	5.2
24	4.5JS	4.3JS	3.8BS	3.5PS	3.5PS	3.8	4.2	5.8	5.7P	6.7V	[6.8]A	6.3	6.2	6.5	6.8	7.0	7.9	8.0	7.6P	7.2	(7.0)JA	6.6	6.2SF	5.5
25	5.6FS	5.0	4.0SF	3.6SF	3.5	3.4	(3.6)H	4.1JA	(4.5)A	4.9	[5.2]A	5.4	5.4	(5.4)H	<4.5G	5.0	5.2	5.6	6.1JS	5.6	5.6	(5.4)S	(4.8)JS	(4.6)S
26	(4.2)S	3.6SF	3.6SF	(3.6)S	(3.2)S	[3.5]A	<3.3G	<3.7G	<4.1G	(4.8)H	5.6	5.2	5.0H	5.2	5.3P	(5.0)P	5.0	5.4	5.8	5.6H	5.7S	5.4	5.0	4.4
27	4.2	3.9	3.6	3.1SF	(3.1)S	3.4JS	(4.0)JH	(4.7)H	[4.9]M	5.1	[5.2]A	[5.3]A	(5.8)HP	5.4	5.4	(5.6)S	5.8	5.8	5.8	6.4F	7.1	6.5	(5.3)S	(4.3)S
28	(4.1)S	3.9	(3.6)S	(3.7)JS	(3.7)S	(3.4)S	4.2JS	(4.6)A	4.8JA	5.4H	5.7	6.0	5.8	5.6	5.8	5.7	6.1	6.2PB	6.4	6.2	6.6	6.3	(5.6)AS	A
29	A	(4.6)SA	[4.6]A	(3.4)SA	(3.3)S	3.7	4.5	(5.1)A	5.2	6.2	A	A	5.8	5.8	5.8	6.0	6.6	6.8	7.2H	7.2F	7.2H	(5.2)A	4.4SF	(4.3)JS
30	4.5JH	(4.5)H	3.8Z	3.9F	(2.6)JS	3.1H	4.0	4.5	4.8	5.0JA	<4.3G	5.2H	5.2PA	5.8	[5.6]B	5.8	6.2	6.6	7.0	6.8	6.6	5.6	5.3JS	(5.0)JA
31																								
Median	5.0	4.5	4.0	3.7	3.3	3.5	4.4	5.0	5.1	5.6	5.8	6.0	6.0	6.1	6.1	6.2	6.4	6.6	6.8	6.8	6.6	6.6	6.0	5.4
Count	28	30	29	27	27	28	29	29	29	29	26	27	28	27	27	29	28	28	28	29	29	29	30	28

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 63

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

Form adopted June 1946

foF2 (Characteristic), Mc (Unit), June (Month), 1951

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., W.A.P., A.H.M.

Calculated by: McC., W.A.P.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	4.2 JF	4.1 SF	[3.7]A	(3.3)JS	(3.4)S	(3.9)S	(4.3)H	5.0	5.2	5.8	5.8	5.8	6.2	5.8	5.6	5.6	6.4	5.0	5.4F	6.7	6.3F	5.8F	[5.0]A	(4.5)JA
2	3.5 HF	3.6H	(3.9)JS	(3.3)FS	2.9	3.6F	<3.5 GF	4.4F	5.4F	6.0F	6.3F	6.4	6.2	6.0	6.6	6.4	7.8	7.6	(7.2)SF	7.6F	7.6	6.4	5.2	4.6
3	3.9 JS	3.8	3.0	2.6 JS	2.7	3.8	4.5	5.0	5.2	5.6	5.7	5.7	5.8	5.8	6.0	6.2	6.6 JS	6.8	7.2 JS	7.0F	(6.0)SF	(5.5)JS	5.1S	S4.9 VF
4	4.4 JS	4.1 JS	3.6 JF	A3.3 JS	A(2.7)JS	[3.6]A	4.6	5.0	5.5	5.6	6.0	[6.2]C	6.0	6.8	6.9	6.7	6.9	7.2	6.8	6.7	6.6 JS	(6.0)JS	(5.4)S	4.5 SF
5	4.0 JS	3.2 JS	(3.0)JS	2.7	F(2.6)JS	3.8	4.9	5.8	6.4	6.0	7.0	6.4	6.4	7.0	7.0	6.6	6.6	6.8	[7.0]A	7.2	7.4	7.3	6.2F	5.4F
6	4.6F	4.2 JS	3.5	FK2.5 JS	(2.4)JS	3.3K	<3.5 GK	<3.9 GK	<4.1 GK	<4.2 GK	K(4.3)GA	M K	A K	<4.5 GK	K(5.3)AG	5.4K	5.6K	5.4 PK	5.2K	5.2K	5.8K	5.6F	5.2 JF	(5.3)A
7	5.0F	4.0	4.0	4.2	4.2 JA	4.5	(4.7)A	5.6	5.9	6.2	6.1	6.0	5.8H	5.8	5.6	5.4	5.8S	5.8	6.2 JS	6.2	6.2	6.2	6.0	5.4
8	5.5	5.0V	4.7	[4.0]C	3.4 JS	3.8	4.4	4.8	5.6V	5.6H	6.1	6.4H	M	M	M	M	M	M	M	M	M	6.0	[5.7]M	5.4
9	5.5	4.5	4.0	M	M	M	5.0	5.8S	6.2	6.0	M	M	M	6.3	6.2	6.5	6.7	6.4	[6.4]M	6.4	6.8	6.5	6.0	5.8
10	4.8	4.8	M	M	M	M	6.2	6.2	7.4	7.2	7.2	7.6	7.5	7.2	7.0	7.4	7.8	7.6	8.2	7.7	7.6	6.8	6.4	5.2
11	4.6F	4.8	(4.5)JS	4.0 JF	3.9 JF	4.9	5.5	6.2	5.8F	[6.0]A	6.2	6.9	7.4	7.6	7.4	7.6	7.6	[7.4]A	7.8	8.0	7.3	6.6	6.0	5.8
12	5.6	5.1V	(4.2)JA	3.6	2.9	4.0F	4.5	4.6 JF	<4.5G	5.2H	A	A	6.4	6.3	6.4	6.5	6.8	6.6	6.6	6.8	7.0	6.8	6.1	5.8
13	5.3	4.7	4.3F	4.0	3.8F	4.5	5.3F	5.5H	6.2	6.5	7.2	7.2	7.4	7.2F	7.2	7.4	7.9	7.6	7.7F	7.5	7.0F	7.0F	S(6.4)JF	6.0F
14	5.2	5.2	(5.2)FS	4.7F	4.2F	5.0H	5.8H	6.1	6.7	(6.7)H	7.2	7.5	7.4	7.6	7.4	8.3	8.0	9.0	9.2S	10.0	8.2H	8.0	7.4	5.9S
15	4.5	4.1V	3.6	3.4F	3.2	4.1H	4.7H	[4.8]A	4.8	<4.6G	<4.7 GB	5.5	6.0	6.2	5.8	6.0	6.7	6.2	(6.0)A	6.0	6.8	7.2	6.0	5.6
16	4.5	3.8	3.0	[2.9]A	2.8	3.9	4.9	5.0	<(4.9)GA	A	A	A	A	A	A	(6.0)A	[6.6]A	6.8	6.9	7.2	7.2	7.0	6.6	6.3
17	5.0	4.3F	4.0S	3.8	(3.6)A	4.9	5.8	6.2	6.2	6.4	6.8	7.2	7.0	7.0	7.0K	8.0K	8.4K	7.8K	8.4K	9.0K	8.0 FK	7.8 FK	6.0 FK	(6.2)BK
18	2.7K	K2.7 JF	K2.4 JB	K2.2 JF	3.0 FK	(4.0)HK	<3.7 GK	4.5K	4.8K	<4.5 GK	<4.6 GK	<4.6 GK	<4.6 GK	<4.7 GK	<4.7 GK	5.6K	5.6K	5.6K	5.8 SK	6.2K	[6.1]AK	6.0 FK	K5.4 SF	K(5.4)AF
19	K4.0 FZ	3.2 ZK	2.8K	K2.4 JS	K2.7 JS	3.5 FK	<3.6 GK	<4.0 GK	<4.2 GK	<4.3 GK	<4.4 GK	B K	B K	<4.5 GK	A K	K(5.0)JB	A K	A K	A K	K6.0 JA	(6.7)SK	6.4H	A(5.8)SF	(5.3)SA
20	S A	A	(4.2)SA	(3.5)SA	3.3	4.4 SH	5.4 JH	(5.3)JA	5.2	[5.3]A	(5.4)A	5.8	6.0	6.1	6.6	6.6	7.0	7.0	7.4S	8.4	7.8S	7.2	6.0	(5.6)S
21	5.3S	4.5F	3.9 SF	3.8F	3.5F	4.4	(4.7)H	5.2	(5.4)H	5.4H	5.8H	(6.0)B	6.1	6.6	6.7	6.6	6.6	6.4	7.0 SF	7.0S	(7.4)S	(7.0)S	(6.4)S	(5.0)SF
22	5.3H	(5.2)S	(4.5)S	4.3F	4.8	5.2	(5.8)P	[6.4]N	7.0H	7.4H	7.2	7.4H	7.0	6.8	(6.4)S	6.4	6.8	7.1S	7.6	7.4	6.3	(5.9)S	5.6	5.2S
23	5.0	4.5F	4.0H	3.7S	3.7	4.3H	5.2	5.3H	5.8 JH	5.4	5.8H	6.2H	5.6	(5.8)H	5.6H	5.8	6.2	6.6	7.0	6.6	6.3S	6.1	5.9S	5.0
24	4.4	4.0	3.5F	3.5	3.4	4.2	5.5	6.2	6.6	7.0	6.7A	6.2 JA	6.5	6.7	7.0	7.4	[7.5]B	7.6	7.0	6.9	[6.6]A	6.2F	5.8	(5.8)S
25	5.4F	4.4 JS	3.5F	3.4 JS	3.4	<3.2G	4.0 JS	4.6	5.2	A	A	6.2 JB	<4.6G	(5.2)H	<4.4G	5.2	5.5	5.7	5.7	(5.6)S	(5.4)S	(5.2)S	(4.8)S	(4.4)S
26	(3.8)JS	3.4	3.5 JS	3.2H	3.3	3.7	4.2	<4.0G	4.5	<4.4G	(5.2)H	(5.4)P	5.1	5.2H	5.2H	4.8H	5.0 JS	5.5	5.7H	5.8	5.4S	(5.2)S	4.6S	(4.4)S
27	4.2S	(3.8)S	3.3	3.0	3.0 JS	3.8	4.1 FH	[4.5]M	5.0	5.1H	(5.2)P	5.4	<4.6G	[5.4]S	(5.2)S	5.6	5.5	[5.8]A	6.3	7.0	7.0	5.7 SF	(4.6)SF	(4.1)JS
28	(4.0)S	(3.7)JS	(3.6)S	(3.6)S	(3.1)S	(3.7)S	4.7	5.4	5.0	5.6	5.7 JH	6.2	5.4	5.6	5.6	6.0H	6.0 JA	6.2H	6.2	6.8	6.6	5.8	A	A
29	A	A	(3.5)JA	(3.3)S	3.2	(4.2)S	4.9	[5.2]A	5.4	A	A	A	5.7	5.7	5.6	6.4	6.8	7.2	7.0F	7.6H	5.8F	4.8	3.5 SF	4.8 ZS
30	4.4F	3.4Z	(3.5)S	3.1H	2.8F	3.6	4.3	<4.4G	4.8 JH	5.3	<4.5G	5.4	5.4	5.7	5.6	6.3	6.6	6.6	7.3	6.4	6.2S	5.3H	5.2 JH	4.5F
31																								
Median	4.6	4.1	3.6	3.4	3.2	4.0	4.7	5.1	5.4	5.6	5.9	6.2	6.0	6.0	6.1	6.4	6.6	6.7	7.0	6.9	6.7	6.2	5.8	5.3
Count	28	28	29	28	28	28	30	30	30	27	25	24	25	28	28	29	28	28	28	29	29	30	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 64

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit), June (Month), 1951

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., W.A.P., A.H.M.

Calculated by: McC., W.A.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							220	220	230	A	A	A	230	210	[220]A	230	200	210	(220)A					
2							A	240	210	200	190	(220)A	[230]A	230	200	200H	220	230	230					
3							250	210	210	[210]A	(220)A	[230]A	240	200	200	210	220	240	[240]A	250				
4							A	A	220	220	210	(200)A	200	220	210	210	210	230	230					
5							230	(280)A	230	A	A	240	200	(230)A	A	A	200H	A	A					
6							230K	220HK	200K	180K	AK	AK	AK	AK	AK	(250)AK	[240]BK	(230)AK	240K					
7							[240]A	A	A	270	230H	[220]A	210	(230)A	[240]A	250A	230	230	250					
8							Q	230	210	[210]A	220	230	210	M	M	M	M	M	M					
9							M	M	M	M	M	M	230	[230]M	230	M	M	M	M					
10							M	M	230	M	M	M	M	M	M	220	A	A	240					
11						270	240	A	A	A	A	(210)A	[210]A	(220)B	A	A	A	A	A					
12							A	230	220	200	(220)A	[240]A	(250)A	A	A	230	230	230	260					
13							270	240	(210)H	230	230	190	230	(220)AH	(240)AH	220H	180H	250	A					
14							Q	230H	220H	230H	210	(200)H	210H	190H	210H	230H	[240]A	(250)A	250					
15							(270)A	[250]A	230	230	210	230	(220)B	(250)B	230	230	B	A	A					
16							(300)A	[270]A	(230)A	A	A	A	A	A	A	A	A	A	A					
17							230	(220)A	[220]A	220	200	210	(250)B	220	210HK	220K	220K	[240]BK	260K	300HK				
18							240HK	250K	230K	220K	230HK	(200)BK	[210]BK	220K	220HK	210HK	240K	250K	AK	QK				
19							280K	250K	[240]AK	220K	210K	(230)BK	(250)BK	240BK	AK	AK	AK	AK	AK					
20							230	A	A	A	A	A	A	A	A	(220)A	A	A	A					
21							260	210	(230)A	(230)A	200H	170H	200H	190H	210H	200	200H	210H	210	Q				
22							240H	(220)A	[230]A	240H	200	210H	[200]B	(200)S	210H	[240]B	260	210	260					
23							250	230	210	[200]A	190	200H	190H	210	200A	210	250	A	A					
24							A	L	230	A	A	A	A	A	200	A	A	A	A					
25							210H	(280)A	(250)A	A	A	A	240	190H	210	210	240	(230)H	260					
26							210	220	200	200H	200	220H	200	190	180H	(220)A	210	210	A					
27							A	190H	M	A	A	A	(220)A	220	(200)S	(180)S	210	A	A					
28							A	A	A	(250)A	210H	190H	190	230	200	230	[220]B	220	A					
29							220	[240]A	(250)A	A	A	A	A	190H	200	200	(230)A	(200)H	230					
30							Q	210	210	A	A	200H	[220]A	(230)A	200	210H	220H	230	(230)A					
31																								
Median						—	240	230	220	220	210	210	220	220	210	220	220	230	240	—				
Count						1	19	22	24	18	17	20	24	23	21	23	21	18	15	2				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 65

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

Form adopted June 1946

foFI (Characteristic), Mc (Unit), June (Month), 1951

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., W.A.P., A.H.M.

Calculated by: McC., W.A.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	(4.2)H	4.4	A	A	A	4.5	4.5	[4.4]A	(4.2)A	4.1	4.0	(3.7)A					
2							A	3.8	(4.0)S	4.2	4.3	4.5	[4.6]A	4.6	4.4	4.4H	4.1	4.0	3.5					
3							L	4.3	4.4	[4.4]A	4.5	[4.6]A	4.7	4.6	4.5	4.3	4.2	4.1	(3.6)S	L				
4							A	4.0	4.2	4.4	4.5	4.7	4.7	4.6	4.5	4.3	4.2	4.0	(3.5)L					
5							L	4.1	4.5	[4.6]A	4.7	4.7	4.7	4.7	4.6	4.5	4.3H	A	A					
6							3.3K	3.8HK	4.0K	4.3K	AK	AK	AK	AK	AK	(4.5)PK	(4.2)PK	(4.0)PK	LK					
7							L	(4.1)P	4.3	4.6	(4.8)H	4.9	4.9	(4.8)A	[4.7]A	4.6	4.4	4.2	3.5					
8							Q	4.0	4.3	[4.4]A	4.5	4.6H	5.0	4.9	M	M	M	M	M					
9							M	M	M	M	M	4.8	5.0	[4.9]M	4.8	[4.6]M	4.5	M	M					
10							M	M	4.6	4.7	4.9	[5.0]M	5.1	[5.1]M	5.0	4.8	4.6	A	L					
11						L	(3.6)L	A	A	A	A	5.0	5.0	5.0	4.9	4.8	A	A	A					
12							L	4.1	4.3	4.5	4.7	[4.8]A	4.8	5.0	4.9	4.8	4.6	L	L					
13							L	4.3	4.7H	4.9	[5.0]N	5.1H	5.2	(5.1)H	5.2H	5.0H	4.8H	L	A					
14							Q	4.4H	4.5H	[4.7]N	4.8	(5.0)H	5.0H	5.0H	5.1H	5.0H	[4.6]A	4.3	3.8					
15							3.7	[4.0]A	4.4	4.4	4.6	4.7	4.8	5.0	4.9	4.8	[4.5]B	4.3	A					
16							3.7	[4.2]A	4.8	4.8	A	A	A	A	A	A	4.7	4.5P	L					
17							L	4.2	A	L	4.8	5.0	5.0	5.1	4.8HK	4.7K	4.5K	4.3K	4.0K	3.2HK				
18							3.5HK	3.9K	4.2K	4.4K	(4.5)AK	4.6K	(4.6)BK	4.7K	4.7HK	4.5HK	4.5K	4.2K	LK	QK				
19							3.4K	3.8K	(4.0)AK	4.3AK	4.4K	4.5K	4.6K	4.6BK	(4.5)AK	(4.4)AK	AK	AK	AK					
20							(3.6)L	A	A	4.5	[4.6]A	4.7	[4.8]A	4.8	[4.7]A	(4.6)A	(4.5)A	A	A					
21							L	(4.4)L	4.5	4.7	4.7H	4.8H	4.9H	4.9H	(4.8)H	4.6	4.5H	4.1H	3.8	Q				
22							L	4.1	4.5	(4.7)H	[4.8]N	4.9H	4.9	5.0H	4.8H	4.7	4.5	4.1	L					
23							3.6	4.1	4.3	4.5	4.6	4.7H	4.8H	4.7P	4.7H	4.7	4.6	4.1	A					
24							A	L	L	4.5	A	A	A	A	4.6	4.6	4.6	4.2	(3.8)P					
25							3.3H	3.7	4.0	(4.3)A	A	A	(4.7)P	4.6H	4.5	(4.3)P	4.2	(4.0)H	(3.7)L					
26							3.3	3.7	4.1	4.2H	4.4	4.5H	4.6	4.6	4.5H	4.4	4.2	A	A					
27							L	L	M	(4.3)A	A	A	4.5H	(4.6)S	(4.5)S	(4.3)S	(4.2)B	(4.0)A	A					
28							(3.4)L	[3.8]A	4.2H	4.5	4.6	4.7	4.7	(4.7)B	4.6	4.5	[4.2]B	(3.9)B	A					
29							(3.5)L	[3.9]A	(4.2)S	A	A	A	(4.2)A	4.6H	4.5	4.4	4.4	4.0H	3.5					
30							Q	3.8	4.1	[4.2]A	(4.3)A	4.5H	[4.5]A	4.5	4.3	(4.2)H	4.2H	4.0	3.5					
31																								
Median						—	3.5	4.0	4.3	4.5	4.6	4.7	4.8	4.7	4.7	4.6	4.5	4.1	3.6	—				
Count							12	24	24	25	21	23	27	27	27	28	27	20	12	1				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 66

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), June (Month), 1951

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: McC., W.A.P., A.H.M.

Calculated by: A.H.M., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							110	110	110	100	100	110	110	100	100	110	100	[100]B	100					
2							110	110	100	100	100	100	100	100	100	[100]B	100	110	110H					
3						110	100	110	100	100	100	(100)A	100	110	110	110	100	120	120	120				
4							120	110	110	110	100	100	100	100	100	100	100	100	100	B				
5							110	100	100	[100]A	100	100	100	100	100	100	100	100	110					
6							100K	100K	100K	100K	100K	100K	100K	100K	[100]BK	110K	(100)BK	110K	110K	120K				
7							100	100	110	100	100	100	(100)B	100	110	110	110	110	110	S				
8							110	110	100	100	100	100	100	M	M	M	M	M	M	M				
9							M	M	M	M	M	M	M	M	M	M	M	M	M	M				
10							M	M	M	M	M	M	M	M	M	110	110	110	110					
11						120	110	110	110	110	110	110	[100]B	(100)B	110	100	(120)B	100	120	.				
12							110	110	110	100	110	110	110	100	100	110	110	110	120					
13							110	110	110	110	100	110	110	110	110	110	110	110	110					
14							110H	110	110	110	100	100	110	100	110	110	110	[110]A	120					
15							120	110	110	110	[110]B	(110)B	(110)B	[110]B	(120)B	110	B	A	110					
16							110	110	110	110	A	A	A	B	B	B	B	120	(120)B					
17							110	110	(110)B	(100)B	(110)B	110	B	B	110K	110K	[110]BK	(110)BK	110K	140K				
18							120K	110K	110K	110K	110K	(110)BK	[110]BK	110K	[120]BK	(120)BK	110K	110K	120K	120K				
19							120K	110K	110K	100K	100K	(110)PK	(110)BK	(120)BK	[110]BK	(110)AK	100K	100K	100K	.				
20							110	110	110	100	100	(110)B	100	110	110	110	100	100	100					
21							100	100	100	100	100	(100)A	100	100	100	100	100	100	100	(110)S				
22							110	100	100	100	100	100	[100]B	100	100	[100]B	100	100	100					
23							110	100	100	100	100	100	100	100	100	100	100	100	110					
24							A	A	100	100	(100)B	100	100	B	B	B	(100)B	[100]B	100					
25							100	100	100	100	100	[100]B	100	100	100	[100]B	100	100	110					
26							110	100	100	100	100	100	100	100	100	100	100	100	100					
27							100	(100)A	[100]M	100	(100)A	(100)A	100	[100]B	100	S	B	100	B					
28							100	100	100	100	100	(100)A	100	100	100	B	B	B	B					
29							110	100	110	100	100	(100)A	(100)A	100	100	100	100	100	100					
30							100	100	100	100	100	100	100	[100]B	(110)B	100	100	100	100					
31																								
Median						—	110	110	100	100	100	100	100	100	100	110	100	100	110	120				
Count						2	27	27	28	28	29	27	26	24	25	24	24	26	26	5				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 67

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

foE (Characteristic), Mc (Unit), June (Month), 1951

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., W.A.P., A.H.M.

Calculated by: W.A.P., A.H.M., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A	3.1	3.3	A	A	B	A	3.4	3.0	$(2.9)^{P}$	B	A					
2							2.1	2.5	3.0	3.2	$(3.3)^{P}_{A}$	A	A	3.5	3.4	$[3.2]^{B}$	3.0	2.8	2.4^{H}					
3						1.6	2.2	2.6	2.9	3.1	A	A	3.6	3.5^{P}	3.3	3.2	3.0^{P}	2.8	2.4	A				
4							2.1	2.6	2.8	3.0^{P}	$(3.1)^{P}$	A	A	3.5^{P}	3.3	$(3.1)^{P}$	$[2.9]^{A}$	$(2.6)^{S}$	2.3	B				
5							2.5	2.7	3.0	$[3.2]^{A}$	3.4	3.5	3.5	B	A	B	B	3.0	2.5					
6							2.3^{K}	2.7^{K}	3.0^{K}	$[3.2]^{A}_{K}$	3.4^{K}	$[3.5]^{A}_{K}$	$(3.5)^{B}_{K}$	3.5^{K}	$[3.4]^{B}_{K}$	$(3.3)^{P}_{K}$	$[3.2]^{B}_{K}$	3.0^{K}	2.5^{K}	$(1.9)^{P}_{K}$				
7							A	$(2.8)^{P}$	3.2	3.4	A	A	B	3.6	3.6	3.5	3.2	2.9	2.4	2.0				
8							A	2.8	3.1	3.3	3.5^{P}	3.6	$(3.8)^{P}$	M	M	M	M	M	M	M				
9							M	M	M	M	M	M	M	M	M	M	M	M	M	M				
10							M	M	M	M	M	M	M	M	M	3.3	3.2	3.0	2.5					
11						A	2.5	2.9	3.2	3.4	3.5	3.6^{P}	$[3.6]^{B}$	$(3.7)^{B}$	3.6^{P}	3.5	$(3.4)^{B}$	3.2	2.6					
12							A	2.9^{P}	3.1	3.4	3.5	3.6^{P}	A	A	A	3.4	3.1	2.9	2.6					
13							A	3.0	3.3	3.5	$[3.7]^{B}$	3.8	3.8^{P}	B	B	B	3.4	3.1	2.6					
14							2.5^{H}	2.9	3.3	3.5	3.7	$[3.8]^{B}$	3.8	3.8	$[3.8]^{A}$	3.7	3.5	$[3.0]^{A}$	2.6					
15							2.5	3.1	3.3	3.4	$[3.6]^{B}$	3.7	$(3.7)^{B}$	B	B	3.6	$(3.4)^{B}$	$[3.0]^{A}$	2.5					
16							A	2.9	3.2^{P}	$(3.6)^{A}$	A	A	A	B	B	B	B	2.9^{P}	2.6					
17							2.4	A	A	3.1^{P}	3.6^{H}	$(3.7)^{P}$	B	B	3.7^{K}	3.5^{K}	$[3.3]^{B}_{K}$	3.0^{K}	2.5^{K}	2.0^{K}				
18							$(2.5)^{P}_{K}$	2.9^{K}	3.3^{K}	3.5^{K}	3.6^{K}	$(3.6)^{B}_{K}$	$(3.6)^{B}_{K}$	3.6^{K}	B^{K}	B^{K}	3.2^{P}_{K}	3.0^{K}	2.6^{K}	1.9^{K}				
19							2.4^{K}	3.0^{K}	3.2^{K}	3.3^{K}	3.4^{K}	$[3.5]^{A}_{K}$	3.5^{P}_{K}	3.5^{K}	A^{K}	A^{K}	3.4^{K}	3.0^{K}	2.6^{K}					
20							A	2.9	3.2	3.3^{P}	$(3.4)^{P}$	$[3.4]^{B}$	3.4	$[3.5]^{B}$	3.5	3.4	A	A	2.4					
21							2.5	$[2.8]^{A}$	3.2	3.3	3.4^{P}	3.4	3.5	$(3.5)^{P}$	3.5	3.5	3.3	3.0	2.5	1.7				
22							2.5	2.8	3.2	3.4	3.5^{P}	3.5	$[3.6]^{B}$	$(3.6)^{B}$	S	B	B	3.0	2.6					
23							2.4	2.9	3.2	3.4	3.5	3.6	A	A	A	A	3.3	3.0	2.5					
24							A	A	A	3.2^{P}	3.5^{P}	3.6^{P}	A	B	B	B	2.8	B	A					
25							2.3	$[2.7]^{A}$	3.0	3.2^{P}	3.4	$[3.5]^{B}$	3.6	3.6^{P}	3.5^{P}	$(3.4)^{B}$	3.2	3.0^{P}	2.5					
26							2.1	2.4	3.0	3.2^{P}	3.3	3.5	3.5^{P}	3.5^{P}	$(3.4)^{P}$	3.3	3.1	2.8	2.4					
27							A	A	M	3.1	$[3.1]^{A}$	$(3.2)^{A}$	$(3.2)^{A}$	B	S	S	B	2.9	$(2.5)^{B}$					
28							2.2	2.7	3.0	$(3.1)^{A}$	$(3.2)^{A}$	A	A	3.3^{P}	3.2	B	B	B	A					
29							2.2	$[2.6]^{A}$	3.0	3.1^{P}	A	A	A	A	3.4^{P}	3.1	3.0	2.9	2.5					
30							A	2.7	3.0	3.1	3.2	3.4	3.3	$[3.3]^{A}$	$(3.3)^{P}$	3.2	3.1	3.0	2.4					
31																								
Median						–	2.4	2.8	3.1	3.3	3.4	3.6	3.6	3.5	3.4	3.4	3.2	3.0	2.5	1.9				
Count						1	18	24	25	28	23	20	17	16	16	18	22	24	25	5				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 68

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

Es (Characteristic), Mc, Km (Unit), June (Month), 1951

Observed at Washington, D. C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., W.A.P., A.H.M.

Calculated by: A.H.M., W.A.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	5.3 Y 110	3.7 120	11.1 110	4.2 120	6.2 Y 110	11.1 110	3.7 120	6.2 Y 110	G	5.5 110	10.0 110	9.6 Y 110	5.7 120	6.8 110	8.2 100	10.4 110	3.4 110	4.0 Y 110	4.9 Y 100	8.0 110	32 120	96 120	11.2 110	86 100
2	8.5 110	E	E	E	E	6.2 Y 110	62 120	5.2 120	4.2 110	8.2 Y 110	7.8 110	9.0 110	90 110	75 130	G	G	G	G	G	3.3 130	E	E	E	E
3	E	E	E	E	E	E	58 Y 100	5.0 Y 130	60 110	88 110	10.4 100	7.0 100	G	G	G	G	G	4.6 Y 120	36 120	33 Y 120	E	3.2 Y 110	33 Y 110	3.1 110
4	3.2 100	3.1 110	2.3 Y 110	38 130	88 Y 120	114 110	6.8 120	4.4 120	4.3 120	4.7 120	4.1 110	4.3 Y 110	9.8 110	G	G	G	G	G	3.9 Y 120	E	E	25 110	E	36 Y 100
5	3.1 Y 100	32 100	3.2 Y 100	E	21 120	E	G	6.6 Y 110	4.6 110	7.4 110	51 110	5.1 110	G	50 Y 100	54 110	53 110	G	80 110	7.6 120	8.2 110	96 100	98 110	90 110	60 100
6	96 100	5.6 100	54 110	58 Y 120	(53) S 100	E	5.8 Y 110	G	6.6 Y 100	3.6 100	5.2 120	50 Y 110	7.6 110	11.0 100	59 120	4.7 Y 130	G	4.5 Y 110	35 Y 110	E	E	E	53 110	6.4 110
7	6.0 110	36 110	3.7 Y 110	E	50 100	3.7 110	34 Y 110	4.1 140	4.7 Y 120	4.6 120	58 Y 110	8.8 110	48 120	5.3 120	64 120	10.2 Y 120	G	G	G	E	E	E	E	E
8	E	E	E	E	8.2 S 130	G	3.1 Y 110	3.8 130	72 120	84 110	64 110	7.4 Y 100	G	M	M	M	M	M	M	M	M	M	M	M
9	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
10	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	G	6.2 120	5.4 130	37 Y 130	36 120	4.0 120	2.9 120	E	E
11	E	E	32 120	2.1 110	E	88 100	3.9 130	58 120	54 120	68 120	86 120	4.7 Y 120	59 120	G	54 Y 110	5.5 110	110 120	10.3 120	90 Y 120	66 120	E	E	E	E
12	E	3.2 120	10.4 Y 120	60 Y 120	37 120	2.2 120	40 Y 110	43 120	9.8 Y 120	5.0 120	91 Y 110	8.6 110	5.8 110	5.2 Y 110	5.3 Y 110	G	G	G	4.2 140	36 Y 130	4.1 120	4.2 120	2.7 Y 120	E
13	4.8 110	44 Y 110	36 Y 120	4.1 Y 110	38 Y 110	44 110	63 Y 120	G	G	G	G	G	G	5.4 120	56 120	G	G	G	7.0 110	3.9 120	31 120	44 110	4.1 110	42 110
14	4.0 110	5.3 110	26 110	4.0 Y 100	35 Y 110	E	G	G	G	G	G	G	G	G	5.8 100	G	5.8 120	3.2 120	G	19 130	E	E	E	E
15	E	E	E	E	E	1.9 130	G	7.8 110	50 120	G	G	G	G	G	G	G	G	4.7 Y 120	90 120	5.0 120	E	E	58 120	63 120
16	10.0 120	7.2 110	90 110	10.0 100	61 110	42 120	79 Y 120	56 120	4.6 Y 120	54 130	120 120	94 120	82 120	7.6 120	98 120	6.2 130	9.2 120	8.2 120	45 120	36 Y 110	50 Y 110	45 110	54 Y 110	E
17	E	E	E	2.3 Y 100	32 100	5.8 Y 100	6.2 Y 120	36 120	6.8 Y 110	6.2 110	G	G	G	G	G	G	G	G	G	G	E	E	E	B
18	E	E	E	E	E	E	G	G	G	G	9.8 Y 100	G	G	G	G	G	G	G	4.5 130	56 120	7.4 120	65 110	54 110	60 110
19	4.4 Y 100	E	E	E	E	6.0 Y 110	8.0 Y 110	G	5.6 120	8.2 Y 140	6.0 110	36 110	G	G	54 110	5.4 110	61 120	10.6 110	125 110	74 120	56 Y 110	55 Y 110	86 Y 110	72 Y 110
20	7.2 Y 110	8.6 Y 100	68 Y 100	62 Y 100	7.6 Y 100	64 100	37 120	56 110	64 110	56 Y 110	66 110	6.2 Y 110	77 110	7.0 Y 110	98 110	78 Y 110	10.2 100	80 100	64 110	34 100	E	E	E	E
21	E	E	E	E	E	G	G	3.0 100	4.6 Y 100	6.6 100	78 100	4.1 100	G	G	66 Y 110	G	G	G	11.8 100	35 100	36 Y 100	32 100	31 100	E
22	4.0 100	32 100	6.4 190	E	1.6 Y 100	24 Y 110	38 Y 120	46 110	5.1 110	G	54 100	5.8 100	B	G	45 110	G	G	G	8.6 100	39 100	56 100	74 100	44 100	E
23	E	E	E	52 Y 120	3.1 110	58 110	34 110	185 Y 110	4.3 110	5.0 Y 100	G	4.7 Y 100	3.9 100	64 100	68 100	84 Y 100	G	5.6 110	53 110	38 110	6.8 110	E	27 110	E
24	E	E	3.0 100	38 100	E	50 Y 100	70 100	45 100	36 100	6.3 110	100 100	11.1 Y 100	120 100	7.0 100	G	48 Y 100	5.9 100	4.0 100	35 100	81 110	12.4 110	58 110	4.0 110	4.9 110
25	74 100	6.2 100	4.0 120	7.0 Y 100	80 Y 100	2.1 100	35 110	46 110	6.4 110	6.6 110	84 100	8.8 110	G	G	G	G	G	G	38 130	21 120	2.7 Y 110	E	E	E
26	31 130	39 120	53 100	E	E	5.6 110	74 Y 100	36 110	G	G	G	G	G	G	G	64 Y 120	G	8.2 110	4.3 120	4.0 110	3.3 110	3.8 S 110	30 110	E
27	40 110	3.1 Y 100	34 100	32 110	37 110	52 Y 100	5.6 110	36 100	M	6.0 100	7.0 100	58 100	5.3 100	G	G	G	G	5.8 110	74 110	8.2 100	5.4 100	56 100	36 100	E
28	E	E	E	E	E	2.9 110	46 110	5.2 110	5.4 110	60 100	94 Y 100	70 100	4.1 100	G	4.5 120	G	B	G	55 110	3.9 110	64 100	84 100	98 110	135 100
29	106 100	64 100	60 100	36 100	3.2 100	G	36 110	54 110	5.8 Y 110	64 100	13.6 100	92 100	6.2 100	5.0 100	G	G	G	G	58 100	5.8 100	39 110	8.2 100	56 100	4.0 100
30	2.1 Y 110	E	E	E	E	E	30 100	G	G	5.6 110	5.0 110	5.3 100	5.8 100	4.6 Y 100	G	G	4.2 100	G	30 120	48 Y 110	4.2 110	37 100	56 100	7.6 100
31																								
Median	3.2	31	31	2.2	3.2	3.3	38	4.4	4.7	56	6.5	5.6	4.0	**	4.5	**	**	3.6	45	3.8	3.4	34	36	**
Count	28	28	28	28	28	28	28	28	27	28	28	28	28	27	27	28	28	28	28	28	28	28	28	27

** MEDIAN fEs LESS THAN MEDIAN foE, OR LESS THAN LOWER FREQUENCY LIMIT OF RECORDER.

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 69

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

(M1500)F2 (Characteristic), ______ (Unit), June (Month), 1951

Observed at Washington, D. C.

Lat 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., W.A.P., A.H.M.

Calculated by: McC., W.A.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(1.9)A	(2.0)JS	(1.9)JA	(2.0)JS	(2.0)JS	(2.4)JS	(2.3)S	G	1.9	1.9	A	A	(1.8)JB	2.0	A	1.9	1.8	2.0	2.0F	(1.9)JA	2.0	(1.9)JA	(2.1)A	(1.9)SA
2	2.0	1.8F	1.8V	2.0	1.9	2.1	A	2.1	1.8F	2.0	2.0F	2.0F	(1.8)A	1.9F	2.0	1.9	1.9	1.9	2.0S	(2.0)SF	1.9	2.0H	(2.1)JH	1.9
3	1.9	2.0S	2.0	(1.8)JS	(1.9)JS	1.9	(2.2)JS	G	2.1	A	1.9	A	1.8	2.0	1.9	1.9	2.0	2.1	2.0S	2.2H	2.0P	(2.1)JS	(2.0)SF	(1.9)JS
4	(1.9)JS	(1.9)JS	2.0JS	2.1SF	A	(1.9)A	1.9	2.1	1.8	(1.9)JS	1.9	2.0	1.9	1.9	1.9	2.1	2.1	2.1	2.2	2.2	2.1	2.0S	(2.1)JS	2.0SF
5	1.9	2.0	1.9JS	(1.8)JS	2.4	2.2	1.9	2.1	1.9	A	1.9	2.0	2.0	2.0	2.0	2.0	2.1	1.9	2.0	A	2.0	2.0	2.0	1.9F
6	2.0SF	1.9F	1.8F	1.9FK	K(1.6)JS	K(2.0)JS	GK	GK	GK	GK	AK	AK	AK	AK	AK	1.7K	1.9K	2.1K	2.1PK	2.0PK	1.9PK	1.9P	1.9F	(1.8)PA
7	1.9F	2.3F	1.9F	(1.7)JF	1.9	2.0	N	(2.3)JP	1.9	1.8	1.8	1.8	(1.9)JB	1.9H	1.8	1.8	1.8	1.9	1.9	2.0S	1.9	1.9	1.9S	1.8
8	1.8	1.9	1.9	1.9	(2.0)JS	2.0H	2.2H	1.9	1.9	A	1.8H	(2.1)H	1.7H	1.5	M	M	M	M	M	M	M	M	M	M
9	M	1.8	M	M	M	M	M	M	M	M	M	1.9	1.7	M	1.8	M	2.0	M	A	2.0	2.0	1.9	1.9	1.9
10	2.0	1.8	1.8	M	M	M	M	M	2.0	2.0	1.8	M	1.9	1.8	1.9	1.9	2.0	2.0	2.0	2.1	1.9	2.0	1.9	1.9
11	1.8	1.8	1.9	(2.0)JS	1.9	2.0F	(2.2)JF	2.1	2.1	1.9	A	1.8	1.6	1.9	1.9	1.9	(1.9)A	A	1.9	1.9	1.9	1.9	1.8	1.8
12	1.8	1.9P	1.9V	1.9P	1.8	2.0	2.2ZF	1.8JF	1.8	G	1.8	A	1.8H	1.8	1.8	1.9	1.9	1.9	1.8	1.8	1.9	(1.9)JS	1.9	1.9
13	1.8	1.9F	(1.9)FS	1.8	(1.9)JS	(1.9)JF	1.9	2.0	(1.8)H	1.9H	1.7H	2.1	1.9	1.9	1.9F	2.0	1.9	2.0F	1.9	2.0	1.9H	(1.9)JS	1.9F	1.9F
14	1.9F	1.8F	(1.8)SF	1.9F	(2.0)S	2.2F	(2.2)SH	2.0	2.0	1.9H	2.0	1.9H	1.9	1.8	1.9	1.7	1.8	1.7	1.7	1.7	2.0	1.8	2.0	(1.9)JS
15	1.9	1.8	1.6	1.6	1.7HS	1.8	1.8	1.9	G	G	G	G	1.7	1.9	1.9	1.8	1.7	1.9	1.8	1.9	1.8P	1.9	2.0	(1.9)A
16	1.9	2.0P	A	A	A	1.8	2.0	A	G	G	A	A	A	A	A	1.8	1.8	1.9	1.9	1.9	1.9F	1.8PF	1.8	1.8
17	2.0	1.9F	1.9F	1.9	1.7F	1.9	2.1	2.0	1.8H	1.9	1.9	1.9	2.0	1.9	1.8K	1.8K	1.9K	1.8K	1.6K	1.7K	K1.7FH	1.7K	1.7HK	BK
18	K(1.6)JF	K(1.7)FH	K(1.6)BF	K(1.6)JF	K(1.7)SF	1.7FK	K(1.8)FH	K(1.6)BH	GK	1.7K	GK	GK	GK	1.7K	GK	1.8K	1.7HK	1.8K	1.8K	2.0SK	AK	1.9HK	1.9FK	1.8K
19	1.7FK	1.8SK	K(1.7)JF	K(1.6)JB	K(1.8)JS	2.0FK	GK	GK	GK	GK	1.6K	GK	GK	GK	GK	1.6K	AK	AK	AK	1.9K	1.9SK	1.9S	(1.9)SA	(1.9)SA
20	1.9	A	(1.8)SA	(1.8)SH	A	(2.0)JS	(2.0)JH	2.1H	A	1.9	A	1.9	A	(2.0)A	A	1.9	1.9	2.0	1.9	1.9S	2.1	2.0	2.1	1.9FS
21	(2.0)S	2.0	1.8	1.8SF	1.9SF	1.9	2.2	2.0	2.0H	2.0H	1.7	2.0	2.0	1.8	2.0	2.0	2.0F	2.0	2.0S	2.0FS	(2.0)S	1.9SF	(2.0)JS	(1.9)SF
22	1.7F	1.9	1.8	1.9FS	1.9	(1.9)PF	(1.9)H	N	(2.0)JH	(2.2)JB	2.0	(1.9)H	1.9H	2.0F	2.0	1.9	1.9	2.0	2.0	2.1	2.0F	1.9P	2.0	1.8F
23	1.9SF	2.0F	S	1.9S	1.9F	2.0H	2.0	1.9H	2.1	2.3	2.0	2.0H	2.0P	2.0	1.8F	1.8H	1.9	2.0	2.0	2.0	(2.0)JA	(2.0)JS	2.0	2.1
24	(2.0)JS	(2.1)JS	2.0PS	2.0PS	2.0PS	2.1	2.1	2.1	2.1P	2.1V	A	2.0	2.0	2.0	2.0	1.9	2.0	2.1	2.0P	2.0	(2.0)JA	1.9	1.9SF	1.9
25	1.9SF	2.0	1.9SF	1.8SF	1.9	1.9	(1.5)H	(1.6)JA	(1.6)A	1.7	A	1.9	1.8	(1.8)H	G	1.7	1.9	1.8	(2.0)JS	2.0	2.1	(1.9)S	(1.9)JS	(1.8)S
26	(1.8)S	1.8SF	1.9SF	(1.9)S	(1.9)S	A	G	G	G	(1.8)H	1.8	2.0	1.9	1.6	1.7P	(1.7)P	1.8	1.8	1.9	2.0H	2.0S	2.0	1.9	1.8
27	1.9	1.9	2.0	1.9SF	(2.0)S	(2.0)JS	(2.2)JH	(1.9)H	M	1.8	A	A	(2.1)HP	2.0	1.8	(2.1)S	2.0	2.0	1.9	2.0F	2.1	2.1	(2.1)S	(2.0)S
28	(1.9)S	1.9	(1.9)S	(1.9)JS	(1.9)S	(1.9)S	(2.1)JS	(1.8)A	(2.3)JA	1.8H	1.8	2.1	1.9	1.8	2.0	1.9	2.0	2.0PB	2.2	2.0	2.1	2.0	(2.0)AS	A
29	A	(2.1)SA	A	(1.9)SA	(2.0)S	2.1	2.2	(2.0)A	2.0	2.1	A	A	2.2	2.1	2.0	1.9	1.9	1.9	2.0H	2.0F	2.1H	(2.0)A	1.9SF	(1.9)JS
30	(1.9)JH	(2.0)H	1.9Z	2.0F	(1.9)JS	2.1H	2.3	2.0	2.0	(1.7)JA	G	1.7H	1.9PA	1.9	B	1.8	1.9	2.0	2.0	2.2	2.1	2.0	(1.9)JS	(2.0)JA
31																								
Median	1.9	1.9	1.9	1.9	(1.9)	2.0	2.0	2.0	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9
Count	28	29	26	27	25	27	26	26	27	26	20	22	27	27	24	28	28	26	27	28	28	29	29	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 70

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

(M3000)F2 (Characteristic), ____ (Unit), June (Month), 1951

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., W.A.P., A.H.M.

Calculated by: A.H.M., W.A.P., McC.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(2.9)A	(3.0)JS	(2.9)JA	(3.0)JS	(3.0)JS	(3.4)JS	(3.3)S	G	2.9	2.8	A	A	(2.8)JB	3.0	A	2.8	2.7	3.0	2.9F	(2.9)JA	3.0	(2.9)JA	(3.1)A	(2.8)SA
2	3.0	2.7F	2.8V	3.0	2.8	3.1	A	3.1	2.7F	3.0	3.0F	3.0F	(2.7)A	2.8F	2.9	2.8	2.9	2.8	3.0S	(2.9)SF	2.9	3.0H	(3.1)JH	2.9
3	2.8	3.0S	3.0	(2.7)JS	(2.8)JS	2.8	(3.2)JS	G	3.1	A	2.8	A	2.7	3.0	2.8	2.9	3.0	3.1	3.0S	3.2H	3.0F	(3.1)JS	(3.0)SF	(2.8)JS
4	(2.8)JS	(2.9)JS	(2.9)JS	3.1SF	A	(2.8)A	2.9	3.1	2.7	(2.9)JS	2.9	2.9	2.9	2.8	2.9	3.1	3.1	3.1	3.2	3.2	3.1	3.0S	(3.1)JS	3.0SF
5	2.8	3.0	(2.9)JS	(2.8)JS	3.4	3.2	2.8	3.1	2.9	A	2.9	3.0	3.0	3.0	3.0	3.0	3.1	2.9	3.0	A	3.0	3.0	3.0	2.9F
6	2.9SF	2.8F	2.7F	2.9FK	K(2.5)JS	K(3.0)JS	GK	GK	GK	GK	AK	AK	AK	AK	AK	2.6K	2.9K	3.1K	3.1PK	3.0PK	2.9PK	2.8P	2.9F	(2.8)PA
7	2.8F	3.3F	2.8F	(2.7)JF	2.9	3.0	N	(3.3)JP	2.9	2.7	2.7	2.7	(2.8)JB	2.9H	2.8	2.7	2.7	2.9	2.9	2.9S	2.9	2.8	2.8S	2.7
8	2.7	2.9	2.9	2.9	(3.0)JS	3.0H	3.2H	2.9	2.8	A	2.7H	(3.1)H	2.6H	2.4	M	M	M	M	M	M	M	M	M	M
9	M	2.7	M	M	M	M	M	M	M	M	M	2.8	2.6	M	2.7	M	3.0	M	A	3.0	2.9	2.9	2.8	2.9
10	3.0	2.7	2.7	M	M	M	M	M	2.9	3.0	2.7	M	2.8	2.7	2.9	2.9	2.9	3.0	3.0	3.1	2.9	3.0	2.9	2.8
11	2.7	2.7	2.8	(3.0)JS	2.8	3.0F	(3.2)JF	3.1	3.1	2.9	A	2.7	2.5	2.8	2.8	2.9	(2.9)A	A	2.9	2.8	2.8	2.8	2.7	2.7
12	2.8	2.8P	2.9V	2.8P	2.8	3.0	3.2ZF	(2.8)JF	2.7	G	2.7	A	2.7H	2.8	2.7	2.8	2.8	2.8	2.8	2.7	2.8	(2.8)JS	2.8	2.9
13	2.8	2.8F	(2.8)FS	2.7	(2.8)JS	(2.9)JF	2.8	3.0	(2.8)H	2.8H	2.6H	3.0	2.9	2.9	2.8F	2.9	2.8	2.9F	2.9	3.0	2.9H	(2.9)JS	2.9F	2.9F
14	2.8F	2.7F	(2.8)SF	2.9F	(3.0)S	3.2F	(3.1)SH	3.0	3.0	2.8H	3.0	2.8H	2.8	2.8	2.8	2.5	2.7	2.6	2.6	2.6	3.0	2.8	2.9	(2.9)JS
15	2.9	2.7	2.5	2.5	2.6HS	2.7	2.7	2.8	G	G	G	G	2.6	2.8	2.9	2.7	2.6	2.8	2.7	2.9	2.7P	2.8	3.0	(2.9)A
16	2.9	3.0P	A	A	A	2.7	3.0	A	G	G	A	A	A	A	A	2.7	2.7	2.9	2.9	2.8	2.9F	2.7PF	2.7	2.7
17	2.9	2.8F	2.8F	2.8	2.7F	2.9	3.1	3.0	2.7H	2.9	2.8	2.8	3.0	2.8	2.7K	2.7K	2.8K	2.7K	2.5K	2.5K	K2.5FH	2.5K	2.5HK	BK
18	K(2.5)JF	K(2.6)FH	K(2.5)BF	K(2.4)JF	K(2.6)SF	2.6FK	K(2.8)FH	K(2.5)BH	GK	2.6K	GK	GK	GK	2.6K	GK	2.7K	2.7HK	2.7K	2.8K	2.9SK	AK	2.8HK	2.8FK	2.7K
19	2.5FK	2.7SK	K(2.5)JF	K(2.5)JB	K(2.8)JS	3.0FK	GK	GK	GK	GK	2.4K	GK	GK	GK	GK	2.4K	AK	AK	AK	2.9K	2.8SK	2.9S	(2.8)SA	(2.8)SA
20	2.8	A	(2.7)SA	(2.7)SH	A	(3.0)JS	(3.0)JH	3.1H	A	2.9	A	2.8	A	(3.0)A	A	2.8	2.9	3.0	2.8	2.9S	3.1	3.0	3.1	2.8FS
21	(3.0)S	2.9	2.7	2.7SF	2.8SF	2.9	3.2	3.0	3.0H	3.0H	2.6	3.0	3.0	2.7	3.0	3.0	2.9F	3.0	3.0S	3.0SF	(2.9)S	2.9SF	(3.0)JS	(2.8)SF
22	2.6F	2.9	2.7	2.9FS	2.9	(2.9)PF	(2.9)H	N	(2.9)JH	(3.2)JB	3.0	(2.9)H	2.9H	3.0F	3.0	2.9	2.9	3.0	3.0	3.1	3.0F	2.8P	3.0	2.7F
23	2.9SF	3.0F	S	2.9S	2.9F	3.0H	3.0	2.9H	3.2	3.3	3.0	3.0H	3.0P	2.9	2.8F	2.7H	2.8	3.0	3.0	3.0	(3.0)JA	(3.0)JS	3.0	3.1
24	(3.0)JS	(3.1)JS	3.0PS	2.9PS	2.9PS	3.1	3.1	3.1	3.1P	3.1V	A	3.0	2.9	3.0	2.9	2.9	3.0	3.1	3.0P	3.0	(3.0)JA	2.9	2.9SF	2.8
25	2.8SF	3.0	2.8SF	2.7SF	2.8	2.8	(2.2)H	(2.4)JA	(2.4)A	2.5	A	2.9	2.7	(2.8)H	G	2.5	2.9	2.7	(3.0)JS	3.0	3.1	(2.9)S	(2.9)JS	(2.8)S
26	(2.8)S	2.8SF	2.8SF	(2.8)S	(2.8)S	A	G	G	G	(2.7)H	2.7	3.0	2.9	2.4	2.6P	(2.6)P	2.7	2.8	2.9	3.0H	3.0S	2.9	2.9	2.7
27	2.8	2.8	3.0	2.9SF	(3.0)S	(3.0)JS	(3.2)JH	(2.9)H	M	2.8	A	A	(3.1)PH	3.0	2.7	(3.0)S	3.0	3.0	2.9	3.0F	3.1	3.1	(3.1)S	(3.0)S
28	(2.9)S	2.9	(2.9)S	(2.9)JS	(2.8)S	(2.9)S	(3.1)JS	(2.7)A	(3.4)JA	2.8H	2.7	3.1	2.9	2.7	3.0	2.9	2.9	2.9PB	3.2	3.0	3.1	3.0	(3.0)AS	A
29	A	(3.1)SA	A	(2.9)SA	(3.0)S	3.1	3.1	(3.0)A	3.0	3.1	A	A	3.2	3.1	3.0	2.8	2.9	2.9	3.0H	3.0F	3.2H	(3.0)A	2.9SF	(2.9)JS
30	(2.8)JH	(3.0)H	2.8Z	3.0F	(2.9)JS	3.1H	3.4	3.0	3.0	(2.7)JA	G	2.6H	2.9PA	2.9	B	2.7	2.9	3.0	3.0	3.2	3.1	3.0	(2.9)JS	(3.0)JA
31																								
Median	2.8	2.9	2.8	2.9	(2.8)	3.0	3.0	3.0	2.9	2.8	2.7	2.9	2.8	2.8	2.8	2.8	2.9	2.9	3.0	3.0	3.0	2.9	2.9	2.8
Count	28	29	26	27	25	27	26	26	27	26	20	22	27	27	24	28	28	26	27	28	28	29	29	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 71

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

Form adopted June 1946

(M3000)F1 (Characteristic), ____ (Unit), June (Month), 1951

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., W.A.P., A.H.M.

Calculated by: McC., W.A.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	(3.6)H	3.4	A	A	A	3.6	3.8	A	(3.8)A	3.7	3.4	(3.8)A					
2							A	3.5	(3.5)S	3.7	3.7	3.6	A	3.6	3.7	3.5H	3.6	3.5	3.7					
3							L	3.1	3.5	A	3.8	A	3.5	3.9	3.7	3.5	3.5	3.4	(3.6)S	L				
4							A	3.2	3.5	3.8	3.9	3.6	3.7	3.7	3.5	3.8	3.6	3.6	(3.9)L					
5							L	3.4	3.5	A	3.7	3.7	4.2	3.7	3.6	3.7	3.5H	A	A					
6							3.6K	3.8HK	4.1K	4.0K	AK	AK	AK	AK	AK	(3.5)PK	(3.4)PK	(3.6)PK	LK					
7							L	(3.6)P	3.5	3.5	(3.7)H	3.6	3.9	(3.7)A	A	3.6	3.5	3.4	3.6					
8							Q	3.5	3.7	A	3.9	4.0H	3.7	M	M	M	M	M	M					
9							M	M	M	M	M	M	M	M	M	M	M	M	M					
10							M	M	3.5	3.5	3.2	M	3.3	M	M	3.6	A	A	L					
11						L	(3.6)L	A	A	A	A	3.6	A	3.6	3.4	3.4	A	A	A					
12							L	3.3	3.6	3.8	3.7	A	3.8	3.5	3.5	3.6	3.5	L	L					
13							L	3.5	3.6H	3.5	N	3.8H	3.6	(4.0)H	3.7H	3.6H	3.7H	L	A					
14							Q	3.6H	3.8H	N	4.0	(3.7)H	3.8H	4.0H	3.6H	3.4H	A	3.3	3.5					
15							3.1	A	3.9	3.8	4.0	3.7	3.5	3.5	3.6	3.8	B	3.5	A					
16							3.2	A	3.3	3.5	A	A	A	A	A	A	3.0	3.4P	L					
17							L	3.6	A	L	3.7	3.7	3.6	3.5	3.8HK	3.5K	3.5K	3.3K	3.1K	3.1HK				
18							3.2HK	3.4K	3.5K	3.7K	(3.5)AK	4.0K	BK	3.7K	3.7HK	3.7HK	3.5K	3.5K	LK	QK				
19							3.3K	3.5K	AK	3.7AK	3.9K	3.7K	3.6K	3.7BK	AK	AK	AK	AK	AK					
20							(3.6)L	A	A	A	A	3.7	A	3.5	A	(3.8)A	(3.5)A	A	A					
21							L	(3.5)L	3.6	3.5	3.8H	4.0H	3.8H	3.8H	(4.0)H	4.0	3.6H	3.6H	3.5	Q				
22							L	3.8	3.6	(3.6)H	N	3.8H	3.7	3.7H	3.7H	3.6	3.6	3.7	L					
23							3.6	3.6	3.9	3.6	3.9	3.8H	3.8H	3.9P	3.7H	3.6	3.5	A	A					
24							A	L	L	A	A	A	A	A	3.7	3.5	3.3	A	(3.7)P					
25							3.6H	3.5	3.7	A	A	A	(3.4)F	3.6H	3.6	(3.8)P	3.6	(3.5)H	(3.5)L					
26							3.7	3.7	3.8	4.0H	3.8	4.0H	4.0	3.9	3.8H	3.5	3.7	A	A					
27							L	L	M	(3.2)A	A	A	3.7H	(3.9)S	(3.9)S	(3.8)S	(3.8)B	A	A					
28							(3.6)L	A	AH	3.5	3.5	3.7	4.0	(3.9)B	3.9	3.6	B	(3.7)B	A					
29							(3.6)L	A	(3.6)S	A	A	A	A	3.7H	3.8	3.6	3.4	3.3H	3.7					
30							Q	3.6	3.8	A	A	4.1H	A	3.7	3.7	(3.7)H	3.8H	3.6	3.7					
31																								
Median						—	3.6	3.5	3.6	3.6	3.8	3.7	3.7	3.7	3.7	3.6	3.5	3.5	3.6	—				
Count						—	12	20	22	17	17	19	20	24	21	26	22	17	12	1				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 72

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

Form adopted June 1946

IONOSPHERIC DATA

(M1500)E (Characteristic), ______ (Unit), June (Month), 1951

Observed at Washington, D.C.

Lat. 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., W.A.P., A.H.M.

Calculated by: McC., W.A.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A	4.3	4.3	A	A	B	A	4.3	4.4	(4.3)P	B	A					
2							4.1	4.2	4.3	4.2	(4.2)PA	A	A	4.1	4.1	B	4.4	4.4	4.2H					
3						4.0	4.3	4.1	4.2	4.3	A	A	4.0	4.0P	4.3	4.3	4.3P	4.3	4.2	A				
4							4.1	4.3	4.3	4.3P	(3.1)P	A	A	4.4P	4.3	(4.6)P	A	(4.7)S	4.5	B				
5							4.2	4.2	4.4	A	4.5	4.5	4.5	B	A	B	B	4.0	4.2					
6							4.4K	4.4K	4.3K	AK	4.6K	AK	(4.3)BK	4.2K	BK	(4.4)PK	BK	4.2K	4.3K	(4.6)PK				
7							A	(4.2)P	4.4	4.5	A	A	B	4.1	4.3	4.1	4.2	4.3	4.2	S				
8							A	4.3	4.1	4.3	4.2P	4.2	(4.1)P	M	M	M	M	M	M	M				
9							M	M	M	M	M	M	M	M	M	M	M	M	M	M				
10							M	M	M	M	M	M	M	M	M	4.5	4.3	4.2	4.2					
11						A	4.2	4.3	4.2	4.3	4.2	4.2P	B	(4.3)B	4.3P	4.3	(4.3)B	4.2	4.3					
12							A	4.1P	4.1	4.2	4.2	4.3P	A	A	A	4.4	4.4	4.3	4.0					
13							A	4.5	4.3	4.4	B	4.3	4.2P	B	B	B	4.1	4.2	4.1					
14							4.0H	4.2	4.3	4.6	4.6	B	4.3	4.3	A	4.3	4.3	A	4.5					
15							4.1	4.3	4.4	4.3	B	4.3	(4.3)B	B	B	4.1	(4.1)B	A	4.3					
16							A	4.4	4.3P	(4.5)A	A	A	A	B	B	B	B	4.4P	4.3					
17							4.1	A	A	4.3P	4.1H	(4.2)P	B	B	4.1K	4.4K	BK	4.3K	4.2K	3.5K				
18							(4.2)PK	4.2K	4.2K	4.2K	4.2K	(4.4)BK	(4.4)BK	4.3K	BK	BK	4.3PK	4.3K	4.1K	4.2K				
19							4.0K	3.9K	4.2K	4.2K	4.3K	AK	4.4PK	4.5K	AK	AK	4.4K	4.3K	4.1K					
20							A	4.2	4.4	4.3F	(4.3)P	B	4.4	B	4.3	4.2	A	A	4.4					
21							4.2	A	4.4	4.4	4.5P	4.4	4.3	(4.3)P	4.3	4.4	4.3	4.2	4.3	4.4				
22							4.1	4.6	4.4	4.3	4.3P	4.4	B	(4.4)B	S	B	B	4.5	4.3					
23							4.4	4.4	4.3	4.4	4.5	4.3	A	A	A	A	4.2	4.4	4.5					
24							A	A	A	4.4P	4.4P	4.4F	A	B	B	B	4.5	B	A					
25							4.4	A	4.3	4.3P	4.3	B	4.2	4.4P	4.3F	B	4.3	4.3P	4.3					
26							4.5	4.5	4.3	4.4P	4.3	4.5	4.3P	4.3P	(4.2)P	4.2	4.3	4.3	4.2					
27							A	A	M	4.4	A	(4.4)A	A	B	S	S	B	4.4	(4.5)B					
28							4.4	4.5	4.3	(4.4)A	(4.3)A	A	A	4.7P	4.5	B	B	B	A					
29							4.6	A	4.5	4.4P	A	A	A	A	4.4P	4.4	4.4	4.1	4.3					
30							A	4.1	4.1	4.3	4.5	4.3	4.3	A	(4.3)P	4.2	4.3	4.1P	4.3					
31																								
Median						—	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.4	4.3	4.3	4.3	—				
Count						1	18	21	25	26	20	15	14	14	14	16	19	22	25	4				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Table 73

Ionospheric Storminess at Washington, D. C.

June 1951

Day	Ionospheric character* 00-12 GCT	Ionospheric character* 12-24 GCT	Principal storms Beginning GCT	Principal storms End GCT	Geomagnetic character** 00-12 GCT	Geomagnetic character** 12-24 GCT
1	3	2			3	4
2	3	3			3	4
3	2	2			3	2
4	2	1			3	2
5	1	2			3	3
6	2	5	0800	----	4	3
7	2	3	----	0200	3	3
8	1	2			4	3
9	2	2			3	2
10	1	3			2	2
11	2	3			2	3
12	1	3			3	3
13	1	3			3	3
14	1	3			1	4
15	3	3			4	4
16	2	#			3	3
17	1	3	1900	----	2	4
18	5	4	----	----	6	3
19	4	5	----	----	5	3
20	3	1	----	0200	2	2
21	1	1			3	2
22	1	2			2	2
23	0	1			2	2
24	1	2			3	2
25	1	3			4	4
26	3	3			3	3
27	2	2			2	3
28	2	2			3	3
29	2	2			2	3
30	1	3			3	2

*Ionosphere character figure (I figure) for ionospheric storminess at Washington, D. C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

**Average for 12 hours of Cheltenham, Maryland, geomagnetic K-figures on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

----Dashes indicate continuing storm.

#No I-figure owing to insufficient data; conditions probably slightly disturbed.

Table 74

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and Forecasts)
May 1951

Day	North Atlantic quality figure, Half day GCT (1)	(2)	CRPL* Warning, Half day GCT (1)	(2)	CRPL** Forecasts (J-reports)	North Pacific quality figure, Half day GCT (1)	(2)	Geomagnetic K_{Ch}, Half day GCT (1)	(2)
1	6	5		(W)	X	6	(4)	(5)	(4)
2	(2)	(4)	W	W	X	(3)	(4)	(4)	(5)
3	(3)	(4)	W	W	X	7	5	(4)	(4)
4	5	(4)	W	W	X	5	(4)	(4)	3
5	6	5	U	U	X	7	6	2	2
6	6	6			X	7	5	3	2
7	6	5			X	7	6	2	2
8	6	5				8	7	1	2
9	6	5				6	6	3	(4)
10	(3)	(4)	W	W		6	(4)	(4)	(4)
11	(3)	(4)	W	(W)		6	(4)	3	(4)
12	(4)	5				7	6	(4)	3
13	6	6				7	7	2	1
14	7	6				6	7	3	3
15	5	5	U	U	X	7	7	(4)	3
16	5	5			X	6	7	(4)	2
17	(4)	5		W	X	5	(4)	(4)	3
18	(4)	5	W	U	X	6	6	(4)	2
19	7	5			X	6	7	2	2
20	6	7				7	5	2	2
21	7	5				6	6	1	0
22	7	5			X	5	6	1	3
23	7	5		(W)		(4)	5	3	3
24	(4)	6	W	U		6	5	3	3
25	6	6				(4)	6	2	3
26	7	5		(W)		8	7	2	(5)
27	(4)	5	W	W		7	6	(4)	1
28	7	6	U		X	6	7	2	2
29	6	6			X	7	5	2	3
30	6	6				6	6	3	2
31	6	6				8	6	3	3

Score:	Warning N.A.	Warning N.P.	Forecast N.A.	Forecast N.P.
H	16	8	7	5
(M)	0	0	0	0
M	2	2	7	4
G	35	35	25	28
O	9	17	23	25

Scales:
Quality Figures
(1)- Useless
(2)- Very poor
(3)- Poor
(4)- Poor to fair
5 - Fair
6 - Fair to good
7 - Good
8 - Very good
9 - Excellent

Geomagnetic K_{Ch} - 0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geq 4$ indicates significant disturbance, enclosed in ( ) for emphasis.

Symbols:
W Disturbed conditions expected
U Unstable conditions expected
N No disturbance expected
X Probable disturbed date

Scoring:
H Storm ($Q \leq 4$) hit
(M) Storm severer than predicted
M Storm missed
G Good day forecast
O Overwarning

Scoring by half day according to following table:

	Quality Figure ≤ 3	4	5	≥ 6
W	H	H	O	O
U	(M)	H	H	O
N	M	M	G	G
X	H	H	O	O

*Broadcast on WWV, Washington, D.C. Times of warnings recorded to nearest half day as broadcast. ( ) broadcast for one-quarter day. Blanks signify N.

**In addition to dates marked X, the following were designated as probable disturbed days on forecasts more than eight days in advance of said dates: May 23, 30 and 31.

Table 75a

Coronal observations at Climax, Colorado (5303A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jun 4.0	X	X	X	X	X	X	X	X	X	X	X	X	5	3	8	5	3	5	8	10	8	5	3	3	2	-	-	-	-	-	-	X	X	X	X	X	X
4.6	-	-	-	-	-	3	3	8	3	3	3	5	10	12	15	12	14	12	14	15	13	12	10	5	3	3	3	2	2	3	3	2	2	-	-	-	-
5.6	-	-	-	-	-	-	3	3	3	3	3	5	8	17	15	15	15	13	18	15	5	8	8	5	3	3	3	2	2	3	3	-	-	-	-	-	-
6.6a	X	-	-	-	-	-	-	-	-	-	3	5	12	12	5	12	15	13	12	10	8	4	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
*7.8	-	-	-	-	-	-	-	-	2	3	3	5	5	5	8	12	15	12	8	3	2	2	2	3	3	2	2	2	2	2	3	3	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.6	-	-	-	-	-	-	-	3	3	3	5	8	10	10	12	12	10	5	5	8	5	3	3	5	3	3	3	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	3	3	3	5	8	13	15	12	10	8	5	5	5	3	3	5	3	3	3	3	-	-	-	-	-	-	-	-	-
12.6	-	-	-	-	-	-	-	3	3	5	8	10	12	25	33	25	18	15	10	10	12	15	13	13	14	5	3	2	2	2	3	3	3	-	-	-	-
16.0	-	-	-	-	-	-	-	-	-	-	-	3	3	5	15	12	5	5	5	5	5	8	8	8	5	3	2	-	-	-	-	-	-	-	-	-	-
16.6	-	-	-	-	-	-	-	-	3	3	3	3	3	5	8	14	8	3	3	3	5	8	10	8	5	3	2	-	-	-	-	-	-	-	-	-	-
17.6	-	-	-	-	-	-	-	-	3	3	3	3	3	5	8	8	5	5	3	3	3	3	5	5	3	3	3	-	-	-	-	-	-	-	-	-	-
18.8	-	-	-	-	-	-	3	3	3	3	3	3	5	8	8	10	5	3	3	3	3	5	5	12	10	3	-	-	-	X	X	X	X	X	X	X	-
19.6	-	-	-	-	-	-	-	-	-	-	3	3	3	3	10	8	5	3	3	3	3	3	5	5	5	3	3	3	3	3	-	-	-	-	-	-	-
21.6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	5	3	3	5	8	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-
23.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	X	X	X	X	X	X
23.9	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	12	10	8	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-
27.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8	15	17	8	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-
28.6	-	-	-	-	-	-	3	3	3	3	3	3	3	5	5	3	3	3	5	15	18	20	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-
30.6	-	-	-	-	3	3	5	3	2	2	2	3	3	5	8	8	8	8	10	8	8	12	5	3	3	3	3	3	3	3	-	-	-	-	-	-	-

Table 76a

Coronal observations at Climax, Colorado (6374A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jun 4.0	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	2	2	8	2	2	2	2	2	-	-	-	-	-	-	-	-	X	X	X	X	X	X
4.6	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	2	3	10	10	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	5	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.6a	X	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
*7.8	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	3	10	10	5	-	-	-	-	2	3	3	3	2	2	2	2	2	2	2	2	2	2
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	4	3	3	2	3	2	2	2	2	2
9.6	-	-	-	2	2	2	2	2	3	3	2	2	2	2	2	2	-	-	-	-	-	3	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	2	2	-	-	3	3	2	2	-	-	2	5	5	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
12.6	3	3	3	3	3	3	3	3	5	5	5	3	3	5	22	2	3	2	2	3	4	3	3	3	3	3	3	12	10	8	5	4	3	3	3	3	3
16.0	2	2	2	2	2	3	3	3	3	3	3	5	4	5	10	12	5	2	2	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2
16.6	3	3	3	2	2	2	2	2	2	2	2	3	2	15	10	12	10	3	3	3	2	3	3	5	2	2	3	3	-	-	-	-	-	-	-	-	2
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	8	3	3	3	3	3	3	2	2	4	2	2	2	2	2	2	-	-	-	-	-	3	3
18.8	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	2	2	2	5	2	2	2	2	2	X	X	X	X	X	X	X	2
19.6	-	-	-	-	-	2	2	2	2	2	-	-	2	2	3	4	4	3	2	2	2	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	2
21.6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	4	4	3	3	3	8	5	3	3	2	2	2	2	2	-	-	-	-	-	-	-
23.0	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	X	X	X	X	X	X
23.9	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	3	3	3	5	5	8	5	4	4	4	3	3	3	3	3	3	3	3	2	2	2	2
24.6	2	2	2	2	2	2	2	2	2	2	2	3	3	3	5	10	8	8	8	12	14	12	8	5	3	2	3	3	3	3	3	3	2	2	2	2	2
25.7	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	5	10	5	5	10	15	8	5	3	2	2	2	2	2	2	3	3	3	2	2	2	2
26.7	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	8	10	5	5	15	15	8	5	3	5	5	3	3	3	3	3	2	2	2	2	2	2
27.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	15	17	10	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
28.6	-	-	-	-	-	-	-	-	-	-	2	2	3	5	3	3	5	3	2	8	13	8	13	3	3	2	2	2	2	2	2	2	2	2	2	2	2
30.6	2	-	-	-	-	-	-	-	-	-	-	-	-	2	5	8	5	8	2	2	2	8	3	2	2	2	2	2	2	2	2	3	3	3	2	2	2

Table 77a

Coronal observations at Climax, Colorado (6702A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jun 4.0	X	X	X	X	X	X	X	X	X	X	X	X	2	2	2	2	2	3	3	5	3	3	2	2	2	2	2	-	-	-	-	X	X	X	X	X	X
4.6	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	3	5	5	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
5.6	-	-	-	-	-	-	-	2	2	2	2	2	3	3	4	4	3	3	3	3	3	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
6.6a	X	-	-	-	-	-	-	2	2	2	2	3	3	3	3	5	5	5	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
*7.8	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.6	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.6	-	-	-	-	-	-	-	-	-	-	2	2	3	3	5	8	4	3	2	2	3	3	4	4	3	2	2	2	-	-	-	-	-	-	-	-	-
16.0	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
18.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	2	X	X	X	X	X	X	X	-
19.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
23.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X
23.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
27.9	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
28.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
30.6	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Note: Observation low weight: May 7.8 at S60 - S90 east limb.

Table 75b

Coronal observations at Climax, Colorado (5303A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jun 4.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4.6	-	-	-	-	-	-	3	3	3	3	5	5	5	5	10	5	10	5	3	3	3	9	8	5	3	3	3	3	3	3	3	3	-	-	-	-	-
5.6	-	-	-	-	-	-	3	3	3	3	5	8	8	8	12	10	8	8	8	8	10	15	18	12	8	5	3	3	5	5	3	3	-	-	-	-	-
6.6a	-	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3	3	5	5	8	10	12	12	5	3	2	-	-	X	X	X	X	X	X	X	X	X
7.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	10	8	5	5	3	3	3	3	3	3	3	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	3	3	3	2	2	3	3	3	3	3	3	3	8	5	5	3	3	3	3	-	-	-	-	-	-	-	-	-	-
9.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	10	5	2	3	3	3	3	3	2	2	2	2	2	2	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.6	-	-	-	-	-	3	3	3	3	3	3	3	3	3	5	8	12	15	10	5	5	5	3	3	3	2	2	4	4	3	3	3	3	3	-	-	-
16.0	-	X	X	X	X	X	X	X	X	X	X	X	X	X	5	8	10	12	10	8	5	5	3	3	-	-	-	-	-	X	X	X	X	X	X	X	-
16.6	-	-	-	-	-	-	-	-	-	3	3	3	3	5	5	10	8	12	13	10	8	8	8	10	10	5	3	5	5	3	3	3	3	-	-	-	-
17.6	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	10	10	12	12	10	10	10	10	15	10	5	3	3	3	5	5	5	3	3	-	-	-
18.8	-	3	3	3	3	3	5	5	3	5	8	10	8	8	10	12	12	12	20	18	18	18	20	25	12	8	8	5	5	5	5	X	X	X	X	X	-
19.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	8	10	12	10	10	8	10	12	10	8	3	3	3	3	3	3	3	-	-	-
21.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	5	5	5	5	5	5	3	3	3	-	-	-	-	-	-	-	-	-
23.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
23.9	-	-	-	-	-	-	-	-	3	3	3	3	5	5	8	12	20	12	12	8	10	12	10	12	13	13	8	3	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	3	5	5	3	3	3	5	5	8	15	12	12	20	10	10	10	10	12	15	15	15	12	5	5	3	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	3	3	3	5	8	10	12	10	12	15	14	8	8	8	10	12	13	12	10	8	5	3	3	3	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	3	5	8	10	10	15	15	10	8	5	8	12	14	12	10	8	3	3	3	-	-	-	-	-	-	-
27.9	-	X	X	X	X	X	X	X	3	3	3	3	3	5	8	8	8	5	5	8	12	14	12	8	8	5	3	3	3	3	-	-	-	-	-	-	-
28.6	-	-	-	-	-	-	-	-	-	3	3	3	3	5	5	8	8	5	5	8	8	10	12	14	8	8	5	5	5	3	3	-	-	-	-	-	-
30.6	-	-	-	-	-	-	-	-	-	3	3	3	3	8	13	15	8	3	3	5	8	10	15	15	10	8	5	3	3	3	3	3	-	-	-	-	-

Table 76b

Coronal observations at Climax, Colorado (6374A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jun 4.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4.6	2	2	2	2	2	3	3	3	3	2	-	-	-	-	2	12	8	5	3	3	3	3	5	2	2	2	2	2	2	2	2	2	2	2	2	2	3
5.6	-	-	-	-	-	3	3	3	3	3	2	2	2	2	2	5	4	2	2	3	5	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
6.6a	-	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	2	2	2	3	5	3	-	-	-	-	-	X	X	X	X	X	X	X	X	X
7.8a	2	2	2	2	2	2	2	3	4	4	3	3	3	3	3	3	2	2	3	3	10	3	5	2	2	-	-	-	2	2	2	2	2	2	2	2	2
8.7	2	2	2	2	2	-	-	2	2	2	2	2	2	2	2	2	5	2	2	8	5	8	5	3	3	2	2	-	-	-	-	-	-	-	-	-	-
9.6a	-	-	-	-	-	2	2	3	3	3	3	3	2	2	2	2	10	4	5	3	8	5	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	4	3	4	3	3	3	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-
12.6	3	3	3	3	3	5	5	5	3	8	8	5	5	10	8	11	12	22	15	10	10	5	3	3	8	5	8	2	2	2	2	2	2	3	3	3	3
16.0	2	X	X	X	X	X	X	X	X	X	X	X	X	X	-	2	3	15	3	5	3	5	2	2	2	-	-	-	-	X	X	X	X	X	X	X	2
16.6	2	2	2	2	2	2	2	2	2	3	3	3	3	3	2	3	3	12	20	10	15	8	5	2	2	2	2	-	-	-	-	2	3	3	3	3	3
17.6	3	3	3	3	3	3	3	3	2	2	[illegible]	2	-	-	-	-	2	2	2	8	12	12	10	2	2	-	-	-	-	-	-	2	3	3	3	3	-
18.8	2	2	2	2	2	2	2	2	3	4	3	3	2	2	3	2	2	2	8	12	10	12	8	2	2	2	2	2	2	2	2	X	X	X	X	X	-
19.6	2	2	2	2	2	2	2	2	3	3	5	3	3	2	2	3	2	2	2	8	3	5	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-
21.6	-	-	-	-	2	2	2	2	2	3	5	8	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-
23.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	-
23.9	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	5	12	2	-	-	-	2	2	2	2	2	-	-	-	-	-	-	-	-	-	2
24.6	2	2	2	2	2	2	2	2	2	2	2	-	-	2	2	3	8	10	2	2	-	-	-	2	2	2	8	8	3	3	3	3	3	2	2	2	2
25.7	2	2	2	2	2	2	2	2	5	3	3	[illegible]	2	2	2	3	5	8	5	2	2	3	3	8	5	2	2	2	-	-	-	-	-	-	-	-	-
26.7	2	2	2	2	2	2	2	2	2	[illegible]	[illegible]	2	2	2	2	2	2	8	2	-	-	-	3	5	5	3	2	-	-	-	-	-	-	-	-	-	-
27.9	-	X	X	X	X	X	X	X	3	3	3	3	3	3	3	3	3	5	3	3	3	3	5	5	5	5	3	2	2	2	2	3	3	-	-	-	-
28.6	2	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	3	2	2	3	10	10	3	5	3	3	3	2	2	2	2	2	2	2	2	2	-
30.6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	12	8	3	5	2	2	5	3	3	8	12	2	2	2	2	2	2	2	2	2	2	2	2

Table 77b

Coronal Observations at Climax, Colorado (6702A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jun 4.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4.6	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.6	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-
6.6a	-	X	X	X	X	X	X	X	X	X	X	X	X	X	2	2	2	2	2	2	3	3	2	2	-	-	-	-	X	X	X	X	X	X	X	X	X
7.8a	-	-	-	-	-	-	-	-	-	2	2	2	2	[illegible]	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2		2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.0	-	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	X	X	X	X	X	X	X	-
16.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	-	-	-	-
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	3	4	3	3	3	3	3	3	3	2	2	2	2	2	-	-	-
18.8	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	5	5	5	5	5	5	5	5	4	3	3	2	2	X	X	X	X	X	-
19.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-
21.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-
23.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
23.9	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	5	3	3	2	[illegible]	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	5	[illegible]	3	3	[illegible]	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	2	2	[illegible]	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	[illegible]	[illegible]	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-
27.9	-	X	X	X	X	X	X	X	-	-	-	-	-	2	3	3	2	2	2	[illegible]	[illegible]	[illegible]	2	2	[illegible]	[illegible]	[illegible]	2	[illegible]	[illegible]	-	-	-	-	-	-	-
28.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	[illegible]	-	3	4	4	3	[illegible]	[illegible]	2	-	-	-	-	-	-	-	-	-
30.6	-	-	-	-	-	-	-	-	-	-	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	3	3	[illegible]	[illegible]	2	-	-	-	-	-	-	-	-	-	-

Note: Yellow line (5694A): June 16.0, possibl[illegible] west limb; June 24.6 at S10 west limb, intensity 4; June 25.7 at S15 [illegible] limb, intensity 4.

Table 78a

Coronal observations at Sacramento Peak, New Mexico (5303A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jun. 2.7	-	-	-	3	3	8	8	10	12	10	10	8	10	10	10	10	14	10	10	18	22	12	8	5	5	8	10	8	8	8	3	-	-	-	-	-	-
3.9	-	-	-	-	-	3	5	5	5	5	8	8	10	10	10	12	10	10	12	15	14	10	10	8	5	5	5	5	5	3	3	3	-	-	-	-	-
5.7	-	-	-	-	3	5	8	5	5	8	8	8	15	33	25	23	23	18	28	20	12	8	12	8	8	8	8	8	8	8	8	5	-	-	-	-	-
6.7	-	-	-	-	-	-	-	3	3	3	5	8	12	22	18	15	25	35	38	23	12	10	5	5	3	3	3	3	3	3	-	-	-	-	-	-	-
7.7	-	-	-	3	3	3	3	3	3	3	8	12	14	12	12	12	25	20	15	8	8	8	8	5	5	5	5	5	8	8	5	3	-	-	-	-	-
8.7	-	-	-	-	-	3	3	3	5	5	8	10	10	12	15	19	17	13	12	10	8	5	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-
9.7	-	-	-	-	-	-	3	5	5	5	8	12	15	14	14	15	15	13	12	10	10	8	8	10	10	8	5	5	5	5	5	3	-	-	-	-	-
10.8	-	-	-	-	-	-	-	3	3	5	8	10	12	14	17	17	15	13	10	10	10	12	8	8	10	5	3	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	3	3	5	8	12	15	20	33	31	15	13	10	8	10	10	12	12	10	5	3	3	-	-	-	-	-	-	-	-	-
15.8	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	12	10	5	5	5	5	8	8	10	5	3	-	-	-	-	-	-	-	-	-	-	-
16.8	-	-	-	-	-	-	-	-	3	3	3	3	3	3	5	10	15	8	5	5	5	8	10	10	8	5	3	3	-	-	-	-	-	-	-	-	-
17.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	5	5	5	5	8	8	10	12	10	5	3	3	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	3	3	3	3	3	3	5	8	10	15	13	10	5	3	3	5	5	5	5	3	-	-	-	-	-	-	-	-	-	-	-
20.8	-	-	-	-	-	-	-	-	-	-	3	3	3	5	8	10	15	12	8	8	8	8	5	-	-	-	-	-	-	-	-	-	-	-	X	X	X
21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	10	8	3	3	3	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.6	-	-	-	-	-	-	2	3	3	3	2	2	2	3	3	8	15	12	8	5	5	13	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-
23.7	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.8	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	8	5	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	5	5	5	8	8	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	12	15	17	12	10	5	3	-	-	-	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	3	3	5	5	5	5	3	3	3	3	5	8	18	27	20	10	5	3	3	-	-	-	-	-	-	-	-	-	-	-

Table 79a

Coronal observations at Sacramento Peak, New Mexico (6374A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jun. 2.7	3	3	3	3	3	3	2	2	2	2	-	-	-	-	-	-	2	10	2	2	3	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2
3.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	8	3	3	3	2	2	2	-	-	-	-	-	-	-	2	2	2	2	2
5.7	3	3	3	3	3	3	3	-	-	-	-	-	2	5	2	5	10	8	8	10	3	2	2	2	-	-	-	-	-	2	2	2	2	2	2	2	2
6.7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	8	12	5	5	3	2	2	-	-	2	2	2	2	2	2	-	-	2	2	2	2	2
7.7	3	3	3	2	2	2	2	2	3	3	3	2	3	2	2	3	14	10	2	-	-	-	-	-	3	5	3	2	2	2	-	-	2	3	3	2	2
8.7	3	3	3	3	3	3	3	4	4	4	5	3	5	2	2	2	2	-	-	-	5	5	2	2	3	8	7	6	5	3	3	2	2	2	2	2	2
9.7	2	2	2	2	2	2	2	3	5	5	5	3	5	3	2	3	2	-	-	2	2	8	2	5	3	5	5	4	3	3	2	2	-	-	-	-	-
10.8	2	2	2	2	2	3	3	3	5	5	3	3	2	2	2	2	-	-	2	2	3	3	2	2	2	2	2	2	-	-	-	-	-	2	2	2	2
11.7	-	-	-	-	-	-	-	2	2	5	3	2	-	3	10	5	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-
15.8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	5	3	8	2	2	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-
16.8	2	2	2	3	2	2	2	2	2	2	2	2	3	3	10	5	13	5	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
17.8	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	2	2	2	2	2
19.7	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.8	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	8	3	3	3	5	3	-	-	-	-	-	-	-	-	-	-	-	X	X	X
21.8	2	2	2	-	-	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	10	8	5	3	3	3	2	2	2	2	2	-	-	-	-	-
22.6	3	3	3	2	2	2	2	2	2	2	2	2	3	3	5	5	8	5	5	8	5	5	5	3	5	8	5	3	5	3	2	2	2	2	2	2	2
23.7	2	3	3	2	2	2	2	2	2	2	2	2	3	2	3	3	3	3	5	8	5	5	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2
24.8	2	2	2	2	2	2	-	-	-	-	-	-	3	3	3	12	10	10	10	10	10	8	5	3	3	3	3	2	2	2	2	2	2	2	2	2	2
25.8	-	-	-	-	-	2	2	2	2	2	2	2	3	3	3	3	13	10	8	10	15	5	8	3	2	2	2	2	2	2	2	2	2	2	2	2	2
26.7	2	2	2	2	2	2	2	2	2	2	3	3	3	5	2	3	10	8	10	10	15	12	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
27.7	2	2	2	2	2	2	2	2	-	-	-	2	3	3	3	3	5	3	2	10	15	12	2	3	3	2	2	2	-	-	-	-	2	2	2	2	2

Table 78b

Coronal observations at Sacramento Peak, New Mexico (5303A), west limb

Date	Degrees south of the solar equator																	0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jun. 2.7	-	-	-	-	-	-	-	-	-	8	10	10	12	15	18	15	15	15	12	10	10	10	10	10	10	8	8	5	5	3	3	3	-	-	-	-	-
3.9	-	-	-	-	-	-	-	-	-	5	5	8	8	8	12	12	8	8	5	5	5	8	8	5	5	5	5	5	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	3	3	5	5	8	8	12	10	12	10	8	10	10	15	25	27	15	10	8	8	8	8	8	5	3	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	3	3	3	5	5	8	8	5	5	8	10	15	20	22	25	12	10	8	5	5	8	8	5	3	3	-	-	-	-
7.7	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	8	10	10	10	15	25	8	15	12	10	5	3	5	8	10	5	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	3	3	3	3	5	5	5	5	10	10	8	8	12	15	12	12	10	8	5	5	8	10	5	3	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	12	12	5	5	5	8	9	5	3	5	5	5	8	8	8	5	3	-	-	-	-	-
10.8	-	-	-	-	-	-	-	-	-	-	-	3	3	3	5	5	5	5	5	5	5	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	3	3	3	3	3	3	3	5	8	10	10	5	5	5	5	5	5	3	3	3	3	-	-	-	-	-	-	-	-	-
15.8	-	-	-	-	-	-	-	-	-	-	3	3	3	3	5	10	12	12	15	8	8	8	8	5	5	5	5	5	5	5	3	3	3	-	-	-	-
16.8	-	-	-	-	-	-	-	-	-	-	-	-	3	3	5	10	8	12	15	12	12	10	12	13	5	3	3	3	3	3	3	3	3	3	-	-	-
17.8	-	-	-	-	-	-	-	-	-	-	3	3	3	3	8	12	12	15	17	17	15	15	15	17	12	8	8	5	5	8	8	8	5	3	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	3	3	5	8	10	10	12	20	28	25	22	17	17	15	12	8	8	5	5	5	8	10	8	-	-	-
20.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	8	8	8	10	10	10	8	8	8	8	-	-	-	-	-	-	-	-	-
22.6	-	-	-	-	-	3	5	5	3	3	3	5	5	5	8	12	15	10	12	10	12	13	15	15	15	12	8	10	8	5	5	3	3	3	3	-	-
23.7	-	-	-	-	-	3	5	5	3	3	3	8	8	9	12	33	28	17	15	12	12	13	13	15	16	12	8	8	5	5	3	3	3	3	3	-	-
24.8	-	-	-	-	-	-	-	-	-	-	3	5	8	15	12	18	33	22	15	14	14	15	15	18	15	8	5	5	3	3	3	-	-	-	-	-	-
25.8	-	-	-	-	-	-	3	3	3	3	3	5	10	17	15	20	26	25	15	10	12	13	15	17	14	12	8	5	5	3	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	3	5	8	10	13	15	22	28	17	12	10	12	20	22	15	12	12	12	8	5	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	3	5	8	8	8	12	13	15	16	15	12	12	15	22	15	13	12	10	8	8	5	3	-	-	-	-	-	-

Table 79b

Coronal observations at Sacramento Peak, New Mexico (6374A), west limb

Date	Degrees south of the solar equator																	0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jun. 2.7	2	2	2	2	2	2	3	5	5	3	2	-	-	2	2	12	3	3	3	5	8	5	3	3	3	3	2	2	2	2	2	2	3	3	3	3	3
3.9	2	2	2	2	2	2	2	2	2	2	2	-	-	2	3	8	3	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-
5.7	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	5	2	2	2	3	5	8	2	2	2	-	-	-	2	2	2	2	2	2	2	3	3
6.7	2	2	2	2	2	2	2	3	3	4	3	3	3	3	3	3	3	5	3	8	12	8	4	2	-	-	-	-	-	-	-	-	2	2	2	2	2
7.7	2	3	2	2	2	2	3	2	3	5	5	3	3	3	3	3	5	3	3	5	12	12	3	8	2	-	-	-	-	2	2	2	2	2	2	3	3
8.7	2	2	2	2	2	2	3	3	5	3	2	3	2	-	3	10	5	3	3	8	8	8	5	3	2	2	-	-	-	-	-	-	-	3	3	3	3
9.7	-	-	-	-	-	-	2	2	3	3	3	3	3	2	2	12	5	8	3	8	5	8	3	2	3	3	2	-	-	-	-	-	2	2	2	2	2
10.8	2	-	-	-	-	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	2	2	2	2	2	2	2	2	-	-	-	-	2	2	2	2	2
11.7	-	-	-	-	-	2	2	2	2	2	2	2	2	5	10	5	10	12	10	3	5	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-
15.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	12	3	3	2	2	2	2	2	-	-	-	-	-	-	-	2	2	2	2	2
16.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	12	8	5	8	8	3	-	-	-	-	-	-	-	-	-	-	2	2	2	2
17.8	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	3	8	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	2	2	2	2	5	5	3	2	2	2	-	-	-	2	8	5	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
20.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
21.8	-	-	-	-	-	-	-	-	-	-	3	3	3	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
22.6	2	2	2	2	2	2	2	3	3	3	5	8	5	3	3	5	8	3	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	3	3
23.7	2	2	2	2	2	2	3	3	3	3	5	5	5	4	3	8	15	12	-	-	-	-	-	2	2	3	3	3	3	2	2	2	2	3	3	3	2
24.8	2	2	2	2	2	2	3	2	2	2	2	2	2	5	3	3	10	10	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2
25.8	2	2	2	2	2	2	3	3	5	5	3	3	3	2	2	3	8	5	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-
26.7	2	2	2	2	2	2	2	2	3	8	3	3	2	2	2	2	2	2	3	2	2	2	3	8	5	2	2	-	-	-	-	-	2	2	2	2	2
27.7	2	2	2	2	2	2	2	3	5	10	3	3	2	2	3	3	3	3	5	2	3	2	3	12	3	5	2	2	2	2	2	2	2	2	2	2	2

Note: Yellow line (5694A): June 25.8 at S00-S05 west limb, intensity 3; June 26.7 at S05 west limb, intensity 3.

Table 80a

Coronal observations at Sacramento Peak, New Mexico (6702A), east limb

Date GCT	N 90	N 85	N 80	N 75	N 70	N 65	N 60	N 55	N 50	N 45	N 40	N 35	N 30	N 25	N 20	N 15	N 10	N 5	0°	S 5	S 10	S 15	S 20	S 25	S 30	S 35	S 40	S 45	S 50	S 55	S 60	S 65	S 70	S 75	S 80	S 85	S 90
1951																																					
Jun. 2.7	–	–	–	–	–	–	–	–	–	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–
3.9	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–
5.7	–	–	–	–	–	–	–	–	–	2	2	2	3	3	5	5	5	5	5	3	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
6.7	–	–	–	–	–	–	–	–	–	–	2	2	3	3	3	5	6	4	3	3	3	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–
7.7	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	4	4	3	3	3	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–
8.7	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	3	3	3	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9.7	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
10.8	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11.7	–	–	–	–	–	–	–	–	–	–	–	–	2	2	3	3	3	2	2	2	3	3	3	3	2	2	2	2	–	–	–	–	–	–	–	–	–
15.8	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–
16.8	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
17.8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–
19.7	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20.8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	X	X	X
21.8	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	3	3	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
22.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–
23.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
24.8	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
25.8	–	–	–	–	–	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
26.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
27.7	–	–	–	–	–	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–

Table 80b

Coronal observations at Sacramento Peak, New Mexico (6702A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1951																																					
Jun. 2.7	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
3.9	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.8	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
15.8	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
16.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	5	5	3	3	3	3	3	2	2	2	2	2	-	-	-	-	-
20.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-
23.7	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	4	4	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
24.8	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	5	5	5	3	3	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-
25.8	-	-	-	-	-	-	-	-	-	-	2	2	2	4	4	4	4	4	3	3	3	3	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	2	2	2	3	-	-	-	-	2	3	3	3	3	3	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-
27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 81

Particulars of Observations, Climax, Colorado
January-June 1951

Date GCT	Greenline threshold intensity at 45°	90°	135°	225°	270°	315°	Obs.	Meas.
1951								
Jan. 2.9	>15	>15	13	15	>15	14	D	W
6.9	5	6	5	4	4	5	A	W
7.7	4	3	3	5	7	5	At	W
9.7	15	10	5	9	12	11	D	W
10.7	4	2	2	4	4	5	A	W
12.7	13	6	7	13	13	9	At	W
13.7	6	5	11	6	8	9	D	W
20.8	>15	15	>15	>15	15	14	At	W
21.7	5	5	5	15	5	6	D	W
23.9	5	13	7	5	7	5	A	W
25.7	9	8	7	5	5	7	At	W
26.7	6	6	12	11	13	12	D	W
Feb. 1.9	7	7	15	7	9	8	A	W
7.7	7	5	5	5	5	5	At	W
9.9	5	6	5	-	-	-	A	W
10.7	4	4	6	3	3	3	At	W
13.8	>15	>15	>15	11	14	13	A	W
14.8	5	7	5	6	6	6	At	W
15.8	5	5	6	5	5	5	A	W
16.7	12	7	12	8	13	>15	At	W
17.8	6	6	7	6	7	6	A	W
20.7	5	5	6	10	7	9	At	W
21.7	4	4	5	5	4	5	A	W
23.0	8	9	12	-	-	-	A	W
23.7	8	9	8	7	8	7	At/J	W
26.7	9	4	6	7	10	8	J	W
Mar. 6.9	10	8	10	5	5	10	A	W
8.7	7	7	8	8	7	9	J	W
9.7	9	6	7	7	6	6	At	W
12.7	6	5	8	6	9	7	A	W
23.7	2	3	3	3	2	3	J	W
24.6	4	4	4	3	4	4	At	W
25.7	2	2	3	2	2	3	A	W
29.7	4	4	5	2	5	4	J	W
Apr. 2.6	3	3	4	6	3	5	At	W
3.8	3	4	3	4	3	3	A	W
13.8	3	3	4	5	4	5	J	W
14.7	13	11	10	12	7	14	At	W

Date GCT	Green line threshold intensity at 45°	90°	135°	225°	270°	315°	Obs.	Meas.
1951								
Apr. 16.6	4	5	7	5	5	8	A	W
21.9	4	4	-	-	-	-	J	W
25.6	7	6	6	5	5	6	At/A	W
27.7	-	11	-	-	-	-	J	W
28.6	3	3	3	8	4	7	A	W
May 3.6	4	4	4	3	6	5	At	W
8.7	13	12	12	>15	13	>15	J	W
10.6	8	7	8	10	8	13	A	W
[illegible]	12	9	15	11	9	13	J	W
15.9	10	12	11	6	6	6	A	W
23.6	15	>15	-	-	-	-	J	W
27.6	11	11	13	15	12	12	J	W
30.6	15	14	14	-	-	-	A	W
31.7	>15	15	15	-	>15	-	J	W
Jun. 4.0	-	-	12	-	-	-	A	W
4.6	11	11	11	15	13	>15	J	W
5.6	13	12	11	13	13	14	At	W
6.6	14	14	13	-	14	-	A	W
7.8	7	10	8	10	10	8	J/At	W
8.7	15	12	9	12	9	15	At	W
9.6	8	7	11	7	7	8	A	W
10.7	12	12	11	11	12	12	J	W
12.6	7	6	5	6	6	6	A	W
16.0	9	11	15	-	12	-	At	W
16.6	7	8	8	12	8	10	J	W
17.6	11	11	11	11	11	12	At	W
18.8	9	10	-	14	10	-	A	W
19.6	11	12	11	9	10	13	At	W
21.6	11	13	13	13	13	14	A	W
23.0	15	14	-	-	-	-	A	W
23.9	10	10	9	9	9	13	A	W
24.6	10	8	9	9	9	9	At	W
25.7	12	11	11	12	12	13	At	W
26.7	10	10	10	11	10	10	A	W
27.9	14	>15	-	-	14	>15	At	W
28.6	8	7	8	13	8	9	At	W
30.6	12	11	9	10	8	11	A	W

A - Allen
At - Athay
D - Dolder
J - Johnson
W - I. Witte

Table 81 (continued)

Table complete on preceding page.

Table 82

Particulars of Observations, Sacramento Peak, New Mexico
January - June 1951

Date GCT	Green line threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
1951										
Jan. 4.8	8	8	9	10	10	9	9	9	R	W
5.7	9	8	8	8	8	8	9	10	C	W
6.8	10	11	11	13	11	12	12	13	R	W
7.7	9	9	9	10	10	10	10	10	R	W
8.7	11	10	10	11	11	14	13	10	R	W
9.7	10	10	10	11	10	10	10	11	R	W
16.8	11	11	11	11	11	12	11	12	R	W
17.7	11	11	11	11	11	12	12	12	R	W
18.7	8	8	8	9	10	9	9	10	R	W
19.7	8	8	8	9	9	9	10	11	C	W
20.7	8	7	8	8	8	8	8	8	R	W
21.7	8	7	8	9	9	9	10	10	R	W
23.0	7	7	7	7	7	14	9	8	R	W
24.9	10	10	11	11	11	12	11	11	R	W
25.9	12	11	11	12	12	12	12	11	R	W
26.7	14	12	10	10	9	9	9	9	R	W
27.9	10	9	11	11	13	11	10	10	R	W
29.7	7	7	7	8	7	8	7	8	R	W
Feb. 2.8	10	11	11	12	12	12	12	13	R	W
4.7	8	7	7	7	7	8	8	8	R	W
5.7	9	10	7	8	9	9	11	-	Hu	W
7.8	5	5	5	7	5	6	6	6	R	W
8.6	4	4	3	5	5	5	5	5	R	W
9.7	5	5	5	5	6	6	5	5	R	W
10.7	5	5	5	6	6	6	6	5	R	W
11.7	7	6	6	7	7	8	7	7	R	W
12.7	9	10	10	10	10	11	10	11	R	W
15.7	6	6	6	7	7	7	8	7	R	W
16.8	5	5	5	7	6	6	6	6	R	W
18.8	8	9	9	10	10	10	10	10	R	W
20.7	8	8	9	9	8	8	8	9	R	W
22.9	10	10	9	11	-	-	-	-	R	W
26.7	6	11	8	9	8	8	8	9	R	W
28.7	10	9	9	10	8	9	9	11	R	W
Mar. 1.8	11	11	11	13	13	13	14	11	R	W
4.8	8	8	8	8	11	9	8	8	R	W
5.8	8	8	9	9	10	11	10	13	R	W
6.7	9	10	11	>15	-	-	-	-	R	W
8.9	6	9	7	9	11	10	11	10	R	W
11.7	7	7	7	8	8	9	9	7	R	W
Mar. 12.8	7	7	8	8	10	10	9	9	R	W
13.7	4	6	6	6	7	7	7	7	R	W
14.8	10	11	13	12	13	12	11	12	R	W
16.0	5	6	5	7	-	-	7	7	C	W
16.7	6	7	7	8	7	7	8	15	C	W
19.7	5	6	6	6	7	7	7	7	R	W
20.7	8	8	9	9	9	9	10	9	R	W
22.7	7	8	7	8	9	8	8	8	R	W
24.0	10	11	11	13	13	13	13	15	C	W
24.7	11	13	11	12	8	14	13	15	R	W
29.8	6	7	7	8	7	8	7	8	R	W
30.6	8	8	8	9	9	8	8	9	R	W
31.7	12	12	12	13	13	13	13	10	R	W
Apr. 1.7	8	8	8	9	9	10	10	8	C	W
2.8	9	10	10	10	11	13	13	13	C	W
3.8	5	6	6	7	6	6	6	6	C	W
5.9	8	9	15	15	13	11	15	15	C	W
8.7	6	6	7	6	7	6	7	7	C	W
9.8	11	11	11	11	>15	>15	15	>15	C	W
10.7	5	5	5	5	4	6	-	-	C	W
11.8	6	6	8	8	7	8	8	8	C	W
12.8	5	7	7	7	6	7	7	7	C	W
13.7	5	5	5	5	12	6	7	7	Ha/D	W
14.8	8	7	6	7	8	9	7	8	D	W
16.8	11	12	14	13	12	11	12	13	C	W
18.7	12	14	14	13	14	12	14	14	D	W
21.7	5	4	2	3	3	4	5	6	Ha	W
22.7	3	4	4	3	3	5	5	5	C	W
23.6	7	7	7	8	7	8	8	7	C	W
25.7	5	4	4	5	4	5	5	5	C	W
27.9	6	5	6	5	5	8	8	6	R	W
29.6	5	5	4	5	5	6	6	5	R	W
30.6	8	8	8	9	8	10	8	-	R	W
May 2.7	6	5	5	6	6	6	6	6	Ha	W
3.7	2	3	3	3	3	3	3	3	R	W
4.6	3	3	3	3	3	3	3	3	R	W
8.8	9	9	10	10	11	12	9	9	R	W
9.6	6	7	6	6	7	8	7	7	R	W
12.7	8	9	9	8	11	11	10	9	R	W
14.8	9	11	15	12	>15	>15	>15	>15	R	W

Table 82 (Continued)

Date GCT	Green line threshold intensity at								Obs.	Meas.	Date GCT	Green line threshold intensity at								Obs.	Meas.
	0°	45°	90°	135°	180°	225°	270°	315°				0°	45°	90°	135°	180°	225°	270°	315°		
1951											1951										
May 15.8	10	10	12	13	-	-	-	-	R	W	Jun. 7.7	5	5	6	5	5	5	5	5	C	W
16.9	12	12	13	14	-	-	-	-	C	W	8.7	9	8	9	8	11	9	8	9	R	W
17.7	8	7	7	8	9	8	8	7	R	W	9.7	8	7	7	8	10	10	9	10	R	W
18.6	7	7	5	6	7	8	8	7	R	W	10.8	14	12	12	13	15	11	13	15	R	W
19.6	6	7	7	7	8	8	8	7	R	W	11.7	10	9	10	11	11	10	10	11	R	W
21.7	13	14	14	15	>15	>15	>15	>15	R	W	15.8	11	10	11	11	12	14	>15	>15	R	W
22.7	10	10	9	8	12	12	12	11	R	W	16.8	12	12	12	14	15	15	15	15	R	W
24.7	11	10	10	10	10	10	7	7	R	W	17.8	15	15	13	11	12	12	14	14	R	W
25.6	9	10	11	10	12	11	11	10	R	W	19.7	11	8	11	12	10	8	9	9	R	W
26.7	8	8	8	8	9	10	10	7	R	W	20.8	13	11	13	15	-	-	-	-	R	W
27.7	7	8	7	7	9	9	9	8	R	W	21.8	13	12	14	13	>15	>15	>15	>15	R	W
28.7	11	10	9	9	12	12	11	11	R	W	22.6	7	5	7	8	7	7	7	7	R	W
31.8	15	>15	>15	>15	13	15	15	>15	R	W	23.7	7	5	7	7	8	6	8	7	R	W
Jun. 2.7	7	10	8	8	11	9	9	8	R	W	24.8	12	10	12	12	12	11	12	12	R	W
3.9	13	13	12	13	15	15	15	>15	R	W	25.8	13	11	12	15	13	12	12	13	R	W
5.7	9	9	8	7	9	10	8	8	C	W	26.7	9	9	10	11	11	10	11	11	R	W
6.7	8	8	8	7	8	9	8	8	R	W	27.7	10	8	9	9	9	8	9	10	R	W

C - Cook
D - Dolder
Ha- Hanson
Hu- Huston
R - Ramsey
W - I. Witte

Table 83

Solar Flares, May 1951

Observatory	Date 1951	Time Observed Beginning (GCT)	Time Observed Ending (GCT)	Duration (Min)	Area (Mill) (of) (Visible) (Hemisph)	Position Longitude Diff (Deg)	Position Latitude (Deg)	Time of Maximum (GCT)	Int. of Maximum	Relative Area of Maximum (Tenths)	Importance	SID Observed
Sac.Peak	May 2	2225	2255	30	111	W23	S19	2230:30	8	8		
"	" 4	1505	1610	65	110	W48	S17	1518	12	6		
McMath	" 4	1515		--	--	W43	S16	--	--	--	1	
Sac.Peak	" 8	1505	1520	15	278	E89	N12	1508	35	3		Yes
McMath	" 8	1505		--	--	E90	N10	--	--	--	2	"
Sac.Peak	" 8	1540	1600	20	134	E89	N11	1547:15	20	6		Yes
"	" 9	1515	1524	9	33	E81	N16	1519:30	10	10		
"	" 9	1530	1547	17	55	E81	N16	1535:30	20	5		
"	" 9	1635	1648	13	33	E74	N15	1639	10	5		
"	" 9	1945	2015	30	66	E74	N15	1950:45	15	3		
"	" 10	2325	2410	45	45	E71	N09	2339	12	4		
"	" 11	--	1450	--	166	E62	N11	1400:45	12	2		
"	" 11	1446	1501	15	111	E78	N09	1453	15	7		
"	" 11	1605	1620	15	55	E54	N10	1609	10	4		
"	" 11	1620	1716	56	133	E61	N10	1633	15	3		
"	" 11	1716	1845	89	99	E61	N10	1735	12	5		
"	" 11	1825	1920	55	77	E67	N01	1835	12	4		
"	" 11	1925	--	--	122	E72	N08	1941	10	6		
"	" 11	2115	--	--	66	E66	S01	2148	12	7		
"	" 12	--	1524	--	66	W33	S15	1510	8	10		
"	" 12	1515	1540	25	22	E57	N05	1522	8	8		
"	" 12	1545	1620	35	66	E56	N02	1553	10	5		
"	" 12	1730	1800	30	122	E53	N01	1736	15	4		
"	" 12	1750	1905	75	55	E49	N16	1801	10	8		
"	" 12	1915	1935	20	55	E43	N08	1923	10	6		
"	" 12	1935	2005	30	66	E51	N00	1950	8	7		
"	" 12	1950	2010	20	66	E43	N14	1954	10	7		
"	" 12	2110	2132	22	22	E39	N16	2122	8	8		
"	" 12	2131	2140	9	55	E37	N13	2134	10	8		
"	" 12	2150	2225	35	33	W37	S14	2210	6	10		
McMath	" 13	(1314)	1345	--	--	E35	N10	--	--	--	2	Yes
Sac.Peak	" 14	1500	1521	21	28	W15	N10	1513	8	8		
"	" 14	1900	1930	30	66	E23	N16	1911	12	5		
"	" 14	1920	2000	40	110	E01	N08	1928	15	2		
McMath	" 14	1926		--	--	E04	N08	--	--	--	1 +	
"	" 14	2102		--	--	E20	N16	--	--	--	1 -	
"	" 14	2102		--	--	W15	N07	--	--	--	1 -	
Sac.Peak	" 14	2105	2115	10	22	E18	N09	2111	6	10		
"	" 14	2155	2350	115	500	E26	N09	2224	18	1		
McMath	" 15	1150		--	--	E17	N12	--	--	--	2	Yes
"	" 15	1255	1315	--	--	E42**	N10**	1308	--	--	2	
Sac.Peak	" 15	1300	1317	17	122	E40	N12	1307	10	2		
McMath	" 15	1318	1335	--	--	E10	N16	1325	--	--	1 +	
Sac.Peak	" 15	1325	1400	35	78	E10	N18	1330	12	5		
McMath	" 15	1505		--	--	E11	N16	--	--	--	1 -	
"	" 15	1551		--	--	E08	N12	--	--	--	1 -	
"	" 15	1727		--	--	E16	N12	--	--	--	1 -	
Sac.Peak	" 15	1815	1830	15	55	E06	N10	1820	6	9		
McMath	" 15	1923		--	--	E08	N12	--	--	--	1 -	
Sac.Peak	" 15	2335	--	--	33	E01	N09	2357	8	9		
McMath	" 16	1317		--	--	E30	N11	--	--	--	1	
Sac.Peak	" 16	--	1427	--	44	E33	N11	1349	8	10		
"	" 16	1410	1503	53	55	W02	N17	1418	10	10		
"	" 16	1450	1605	75	155	E27	N11	1510	12	4		
"	" 16	1600	--	--	210	E06	N11	1618	12	1		
McMath	" 16	1608		--	--	E05	N10	--	--	--	1	
"	" 16	1701		--	--	W05	N15	--	--	--	2	Yes
Sac.Peak	" 16	--	--	--	144	W07	N14	1706	12	4		"
"	" 16	1820	1915	55	99	E80	S16	1840	15	5		
"	" 16	2015	2030	15	55	W06	N12	2021	15	8		
"	" 16	2045	2100	15	88	W22	N10	2052	12	10		
"	" 16	2110	2231	81	144	E23	N11	2129	15	5		
"	" 16	2200	2231	31	166	W08	N17	2219	15	6		
Wendelst.	" 17	0947	1005	18	727	E19	N10	0952	--	--	1 - 2	
Meudon	" 17	1442	--	--	--	W15	N15	--	--	--	1	Yes
Sac.Peak	" 17	--	1620	--	212	W17	N18	1502	12	1		"
"	" 17	1525	1605	40	146	W19	N14	1533	15	2		Yes
"	" 17	1530	1550	20	17	E63	N19	1534	8	10		"
"	" 17	--	1730	--	146	W24	N18	1652	12	2		Yes
"	" 17	1710	1819	69	87	W24	N23	1719	10	6		
"	" 17	--	1912	--	372	W09	N11	1805	15	2		
"	" 17	--	1930	--	100	W13	N14	1910	12	2		

Table 83 (Continued)

Solar Flares, May 1951

Observatory	Date 1951	Time Observed: Beginning (GCT)	Time Observed: Ending (GCT)	Duration (Min)	Area (Mill of Visible Hemisph)	Position: Longitude Diff (Deg)	Position: Latitude (Deg)	Time of Maximum (GCT)	Int. of Maximum	Relative Area of Maximum (Tenths)	Importance	SID Observed
McMath	May 18	(1155)	1330	--	--	W30**	N11**	--	--	--	2	Yes
"	" 18	1300		--	--	E04**	N12**	--	--	--	1+	
Sac.Peak	" 18	1545	1600	15	39	W40	N14	1551	11	5		
"	" 18	1725	1815	50	41	E51	S13	1734	6	9		
McMath	" 18	1735		--	--	E55	N17	--	--	--	1	
"	" 18	1948		--	--	E04	N12	--	--	--	1 -	
Sac.Peak	" 18	1959	2110	71	254	W35	N16	2002:30	22	1		Yes
McMath	" 18	1959	2043	--	--	W35**	N17**	--	--	--	2+	"
"	" 19	1305		--	--	E41	N19	--	--	--	1	
"	" 19	1347		--	--	W43	N12	--	--	--	2	Yes
"	" 19	1443		--	--	E51	N18	--	--	--	1+	Yes
Sac.Peak	" 19	1945	2115	90	700	W42	N09	2005	25	1		Yes
McMath	" 19	1950	(2027)	--	--	W43*	N12*	--	--	--	3 -	Yes
Sac.Peak	" 19	2002	2050	48	80	W48	N21	2011	12	5		Yes
"	" 20	--	2050	--	--	W90	S03	--	--	--		
"	" 20	1435	1515	40	103	W70	N17	1452	10	2		
"	" 20	1645	1720	35	103	E27	S16	1659	15	1		
"	" 20	1735	1810	35	148	E26	S14	1738	18	3		Yes
"	" 20	1800	1815	15	80	E10	S16	1807	12	7		
McMath	" 20	1829		--	--	E25	S15	--	--	--	1+	
Sac.Peak	" 20	1900	1915	15	34	W70	N16	1906	12	6		
McMath	" 20	1932		--	--	E25	S15	--	--	--	1+	
Sac.Peak	" 20	1935	2045	70	230	E23	S15	1949	12	4		Yes
"	" 20	1955	2115	80	80	W60	N13	2000	18	5		Yes
McMath	" 20	1957		--	--	W60	N12	--	--	--	2 -	Yes
Sac.Peak	" 20	2110	2210	60	183	E24	S15	2117	15	3		Yes
"	" 21	1610	1635	25	29	W79	N09	1617	10	6		Yes
"	" 21	1755	1820	25	69	W76	N18	1805	10	2		
"	" 22	--	1522	--	160	E07	N17	1406	15	3		Yes
"	" 22	1510	1524	14	23	W90	N15	1515	8	10		
"	" 22	1530	--	--	525	W89	N18	1546:45	10	1		
"	" 22	1820	1910	50	137	W00	S14	1827	12	3		
"	" 22	1910	1955	45	103	W00	S14	1915	8	5		
"	" 22	2155	2225	30	149	W90	N06	2205	10	5		
"	" 23	--	1454	--	80	W11	N17	1426	12	5		
"	" 23	1522	1540	18	46	W21	N20	1530	8	5		
"	" 24	2030	2130	60	149	W29	N21	2040	10	2		
"	" 25	1645	1705	20	34	E35	S24	1647	7	8		
"	" 25	1834	1839	5	23	W53	S18	1837	12	9		
"	" 27	1840	1905	25	46	W67	N20	1846	8	3		
"	" 28	1605	1630	25	32	W81	N24	1608	8	7		
"	" 31	1804	1844	40	126	W43	S31	1807:30	15	2		
"	" 31	1830	1945	75	34	W06	N11	1840	5	7		

*Longitude and latitude of plage or spot group in which solar flare was observed.

**Unusually active prominence or high-speed dark filament also observed near this position.

Sac.Peak = Sacramento Peak; Wendelst. = Wendelstein.

Table 84

Zürich Provisional Relative Sunspot Numbers

June 1951

Date	R_Z*	Date	R_Z*
1	38	17	152
2	38	18	157
3	37	19	146
4	26	20	138
5	65	21	134
6	103	22	123
7	115	23	93
8	130	24	65
9	138	25	60
10	137	26	63
11	133	27	48
12	147	28	45
13	159	29	43
14	163	30	18
15	158		
16	147	Mean:	100.6

*Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Note: The American sunspot numbers for June will appear in [illegible] issue of this bulletin.

Table 85

Indices of Geomagnetic Activity for May 1951

Preliminary values of mean K-indices, Kw, from 36 observatories;
Preliminary values of international character-figures, C;
Geomagnetic planetary three-hour-range indices, Kp;
Magnetically selected quiet and disturbed days

Gr. Day 1951	Values Kw	Sum	C	Values Kp	Sum	Final Sel. Days
1	3.5 3.9 4.0 3.9 2.9 4.1 5.4 6.0	33.7	1.6	4-5-5+6- 3o5-7-7+	41-	Five
2	5.8 2.4 3.6 4.2 4.5 4.7 4.8 4.8	34.8	1.6	7+2+4+5+ 6o5+6o6o	43-	Quiet
3	3.8 2.1 2.9 3.0 3.2 4.1 4.3 4.0	27.4	1.2	5-2+4-3+ 4-5-5o5+	33-	
4	4.5 3.3 2.8 3.6 3.5 3.5 3.6 2.4	27.2	1.1	5+4-3+4+ 4+4o4o3-	32-	8
5	1.2 2.0 1.9 2.0 1.3 1.5 1.7 3.1	14.7	0.5	1o3-2+2o 1o1+2o3+	16-	13 20
6	3.3 3.0 3.5 1.4 2.2 2.3 3.0 1.8	20.5	0.6	3+3+4o1+ 2+2+3o2o	22-	21
7	1.8 1.9 2.2 2.0 2.6 1.7 2.2 1.9	16.3	0.4	2o2+2+2- 3-2o2-2o	17-	22
8	1.1 0.7 0.9 1.1 1.8 1.8 2.2 1.1	10.7	0.2	1o1-0+1o 2-1+2o1o	9o	
9	1.7 1.8 2.8 2.8 2.7 3.6 4.3 6.1	25.8	1.4	2-2o3+3+ 3o4-5-7+	29o	
10	3.3 3.9 4.3 4.2 5.4 4.8 3.5 2.2	31.6	1.4	3+5o5+5o 7-5+4o2+	37o	
11	2.5 2.4 3.0 3.6 4.0 2.9 2.8 3.3	24.5	1.0	3o3-4-4+ 5-3o3+4o	29-	Five
12	3.4 2.9 2.6 1.9 2.2 4.1 3.4 1.4	21.9	1.0	4o3+3o2o 2o4+4o1+	24o	Dist.
13	1.4 0.9 1.3 1.6 0.9 1.1 1.5 2.3	11.0	0.2	1+1o2-2- 0+1-1o2o	10-	
14	2.8 3.0 2.4 2.1 1.0 2.2 3.1 3.9	20.5	0.8	3o4-3-3- 1-3-4-4+	23+	1
15	3.9 3.1 2.4 2.5 2.8 2.7 2.7 2.7	22.8	0.9	5-3+3-2+ 3o3o3+3+	26-	2 9
16	3.8 3.8 2.7 3.1 2.6 2.5 2.5 2.9	23.9	0.9	4+4+3o3+ 2+3-3-3o	26-	10
17	3.7 3.8 3.1 3.5 3.4 3.5 3.1 3.3	27.4	1.1	4o5-4+4+ 4o4o4-4o	33o	26
18	3.8 3.7 2.3 2.8 1.9 2.4 1.8 2.4	21.1	0.9	5-4+2+3o 2-2o2+3-	23o	
19	2.7 2.5 2.3 1.8 2.4 1.6 1.6 1.9	16.8	0.4	3-3-2+2- 3-1+2-2+	17+	
20	1.8 2.0 1.7 1.6 2.0 1.1 1.7 1.3	13.2	0.2	2o2o2-1+ 2o1-2-1+	13-	Ten
21	1.0 0.9 0.9 1.1 1.1 1.0 1.4 1.6	9.0	0.1	1o1o1o1- 1o1-1+1+	8o	Quiet
22	2.4 1.3 0.6 1.1 2.3 2.3 1.3 1.0	12.3	0.3	3-2-1-1o 2+2+1+1+	13+	
23	2.3 2.1 2.2 3.8 3.6 2.9 5.0 4.1	26.0	1.2	2+2+2o4o 4o3+6o5-	29-	5
24	3.8 2.5 2.0 2.4 2.7 3.4 2.3 2.6	21.7	0.8	4+3o2+3- 3o4o3-3-	25-	7
25	1.7 1.9 2.3 1.8 2.1 1.6 2.8 3.5	17.7	0.6	2-2o3o2o 2o1+3+4-	19o	8 13
26	3.3 1.9 1.8 3.0 3.3 5.2 4.6 5.6	28.7	1.5	3+2o2o3o 4-6-6-7o	32+	19
27	4.8 4.6 2.6 3.2 1.7 1.6 1.3 1.8	21.6	1.2	5+5+3-3+ 2-1o1-2-	22-	20
28	2.0 2.6 2.1 1.8 1.6 1.6 0.9 0.4	13.0	0.3	2o3-2o2- 2-1+1-0+	12+	21
29	0.9 1.5 3.3 2.4 3.1 2.7 1.7 3.2	18.8	0.7	1-1+4o3- 4-2+2-3+	20-	22
30	1.4 1.0 2.4 3.8 3.6 2.1 1.8 2.3	18.4	0.8	1+1-3o5o 4+2o2-2+	20+	28
31	2.1 2.3 1.4 3.0 1.9 1.2 2.4 2.9	17.2	0.6	2+3-2-3- 2-1-3-3o	17+	31
Mean	2.76 2.44 2.40 2.58 2.59 2.64 2.73 2.83	2.62*	0.82			

*Erratum: On page 41 of CRPL-F81 the mean Kw for March 1951 is 2.77, not 22.15.

Table 86

Sudden Ionosphere Disturbances Observed at Washington, D. C.

June 1951

1951 Day	GCT Beginning	End	Location of transmitters	Relative intensity at minimum*	Other phenomena
June					
5	1947	2025	Ohio, D. C., Colombia, England, Mexico	0.0	Solar flare 1955** 1930 and 2000***
7	1820	1850	Ohio, D. C., Colombia, England	0.2	Solar flare** 1828
8	1505	1540	Ohio, D. C., Colombia, England, Mexico	0.05	Solar flare** 1503
11	2010	2140	Ohio, D. C., Colombia, Mexico	0.05	Solar flare** 2022
16	1435	1505	Ohio, D. C., Colombia	---	Solar flare 1435** 1450*** 1420****
18	1635	1655	Ohio, D. C., Colombia, England	---	
19	1301	1330	Ohio, D. C., Colombia	---	Solar flare*** 1305
19	1622	1700	Ohio, D. C., Colombia, England, Mexico	0.0	Solar flare** 1620
19	1750	1810	Ohio, D. C., Colombia	---	Solar flare** 1745
19-20	2342	0010	Ohio, Colombia, Mexico	0.1	Solar flare** 2340
20	1710	1740	Ohio, D. C., Colombia, England, Mexico	0.0	
21	2100	2130	Ohio, D. C., Colombia, England, Mexico	0.05	
22	1700	1750	Ohio, Colombia	---	Solar flare** 1650
24	1405	1450	Ohio, D. C., Colombia, England, Mexico	0.0	Solar flare** 1402
24	2125	2230	Ohio, D. C., Colombia, England, Mexico	0.0	Solar flare** 2125
25	1945	2010	Ohio, D. C., Colombia, England	0.1	
26	1550	1650	Ohio, D. C., England, Mexico	0.05	

*Ratio of received field intensity during SID to average field intensity before and after, for station KQ2XAU (formerly W8XAL), 6080 kilocycles, 600 kilometers distant.

**Time of observation at Sacramento Peak, New Mexico.

***Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.

****Time of observation at Schauinsland Observatory, Germany.

---Insufficient data.

Table 87

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief, Cable and Wireless, Ltd., as Observed in England

1951 Day	GCT Beginning	GCT End	Receiving station	Location of transmitters	Other phenomena
June 8	1505	1520	Brentwood	Bahrein I., Barbados, Colombia, France, Greece, Portugal, Spain	Solar flare* 1505
11	0830	0850	Brentwood	Bahrein I., Greece	
11	0828	0905	Somerton	Aden, Ceylon, Formosa, India	
13	0600	0805	Brentwood	Afghanistan, Austria, Bahrein I., Belgian Congo, Bulgaria, Eritrea, Greece, India, Iran, Kenya, Malta, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Thailand, Trans-Jordan, U.S.S.R., Yugoslavia	
13	0600	0800	Somerton	Aden, Australia, Ceylon, China, Cyprus, Formosa, India, Union of S. Africa	

*Time of observation at Sacramento Peak, New Mexico.

Table 88

Sudden Ionosphere Disturbances Reported by Institut für Ionosphärenforschung, as Observed at Lindau, Harz, Germany

1951 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
April					
12	0705	0720	Wiesbaden I**, Wiesbaden II***, München#	0.2	
12	0730	0830	Wiesbaden I**, Wiesbaden II***, München#	0.15	
15	0905	1020	Wiesbaden I**, Wiesbaden II***, München#, Lindau##	0.0	
16	1227	1240	Wiesbaden I**, Wiesbaden II***, München#, Lindau##	0.6	
17	1230	1242	Wiesbaden I**, Wiesbaden II***, München#, Lindau##	0.4	
19	0854	0927	Wiesbaden I**, München#, Lindau##	0.45	
21	1004	1010	Wiesbaden I**, Wiesbaden II***, München#, Lindau##	0.4	
23	1150	1208	München#, Lindau##	0.5	
23	1352	1400	München#, Lindau##	0.5	
25	0716	0739	Wiesbaden I**, Wiesbaden II***, München#, Lindau##	0.25	
25	0842	1010	Wiesbaden I**, Wiesbaden II***, München#, Lindau##	0.0	
30	0644	0651	Wiesbaden I**, Wiesbaden II***, München#, Lindau##	0.02	
30	1725	1732	München#, Lindau##	0.3	
May					
8	1505	1525	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.17	Terr.mag.pulse### 1515-1545
10	0959	1035	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.13	Terr.mag.pulse### 0951-1020
13	1120	1145	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.26	Terr.mag.pulse### 1115-1145
13	1250	1338	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.2	

Table 88 (continued)

1951 Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
May 14	1130	1200	München**, Wiesbaden I#, Wiesbaden II##	0.1	
15	1115	1225	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.0	
16	1125	1130	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.33	
17	0730	0735	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.11	
18	1020	1310	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.0	Terr.mag.pulse### 1025-1130
19	0905	0915	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.25	
19	1350	1410	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.3	
20	0752	0844	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.0	
21	1212	1222	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.3	
21	1315	1340	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.3	
22	0904	0941	Lindau***, München**, Wiesbaden I#, Wiesbaden II##	<0.1	
22	1155	1205	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.25	
22	1331	1438	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.3	Terr.mag.pulse### 1330-1410
23	1038	1230	München**, Lindau***, Wiesbaden I#, Wiesbaden II##	0.015	Terr.mag.pulse### 1125-1150

*Ratio of received field intensity during SID to average field intensity before and after, for station München, 6160 kilocycles, 400 kilometers distant.

**Station München, 6160 kilocycles.

***Station Lindau, 1780 kilocycles, pulse, transmitter and receiver at Lindau.

#Station Wiesbaden I, 2985 kilocycles.

##Station Wiesbaden II, 4760 kilocycles.

###As observed at Lindau.

Table 89

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief, Cable and Wireless, Ltd., as Observed in Barbados, B.W.I.

1951 Day	GCT Beginning	GCT End	Location of transmitters	Other phenomena
May 8	1508	1530	British Guiana, England, Grenada, Jamaica, St. Lucia, St. Vincent, Trinidad	Solar flare* 1505 Solar flare** 1505
15	1125	1215	England	Solar flare* 1150
18	1110	1210	England	

*Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.
**Time of observation at Sacramento Peak, New Mexico.

Table 90

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief, Cable and Wireless, Ltd., as Observed at Colombo, Ceylon

1951 Day	GCT Beginning	GCT End	Location of transmitters	Other phenomena
April 19	0540	0700	China, India, Japan	
25	0720	0800	China, England, India, Japan	Solar flare* 0703

*Time of observation at Wendelstein Observatory, Germany.

Table 91

Sudden Ionosphere Disturbances Reported by International Telephone and Telegraph Corporation, as Observed at Platanos, Argentina

1951 Day	GCT Beginning	GCT End	Location of transmitters	Other phenomena
May 15	1128	1300	Belgium, Denmark, Germany, Italy, Netherlands	Solar flare* 1150
23	1045	1125	Brazil, Denmark, Germany, Italy	

*Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.

Table 92

Sudden Ionosphere Disturbances Reported by RCA Communications, Inc.,

as Observed at Point Reyes, California

1951 Day	GCT Beginning	End	Location of transmitters	Other phenomena
June				
24	2130	2200	Australia, China, Formosa, Hawaii, Japan, Korea, Philippine Is.	Solar flare* 2125
26	0018	0200	Australia, China, Formosa, Hawaii, Japan, Java, Philippine Is.	

*Time of observation at Sacramento Peak, New Mexico.

Table 93

Sudden Ionosphere Disturbances Reported by RCA Communications, Inc.,

as Observed at Riverhead, New York

1951 Day	GCT Beginning	End	Location of transmitters	Other phenomena
June				
16	1443	1500	Argentina, Canada, England, Italy, Panama, Tangier, Switzerland	Solar flare 1420* 1435** 1450***
19	1305	1345	Argentina, California, Canada, England, Italy, Panama, Tangier	Solar flare*** 1305

*Time of observation at Schauinsland Observatory, Germany.
**Time of observation at Sacramento Peak, New Mexico.
***Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

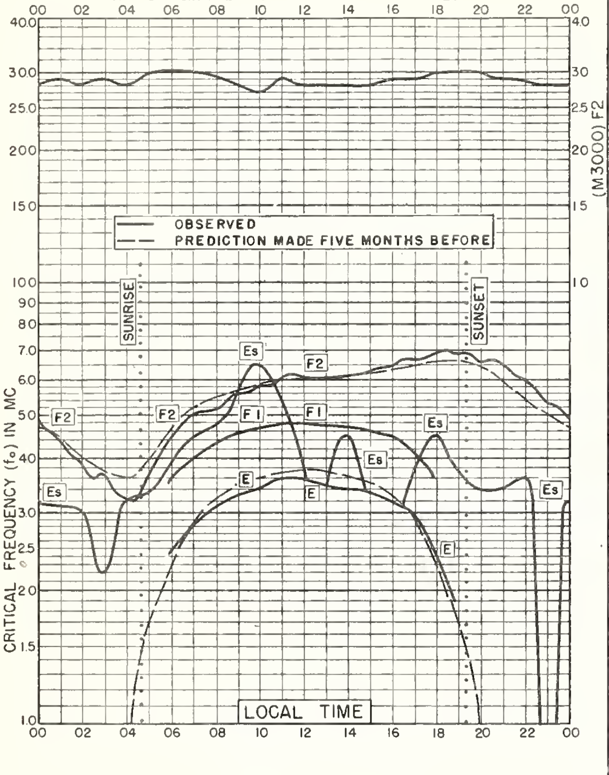


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W JUNE 1951

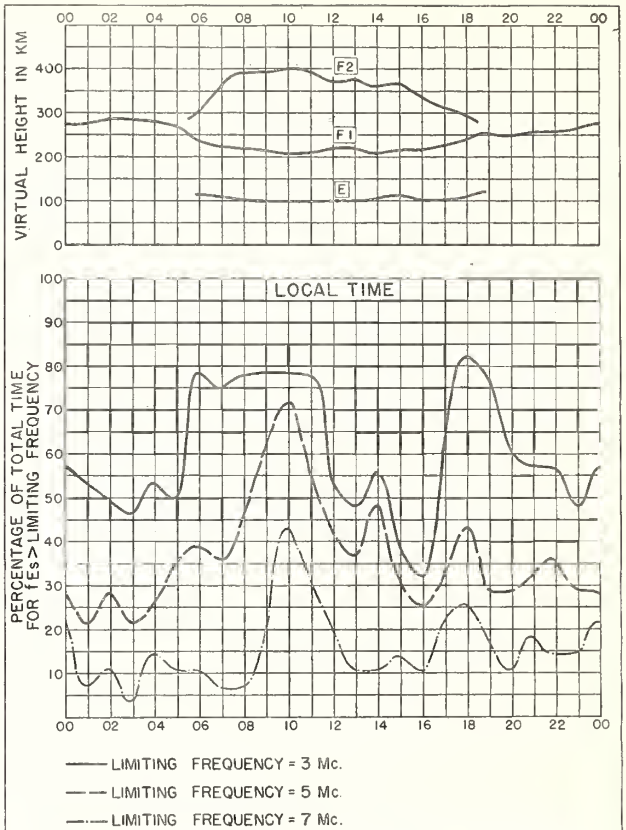


Fig. 2. WASHINGTON, D.C. JUNE 1951

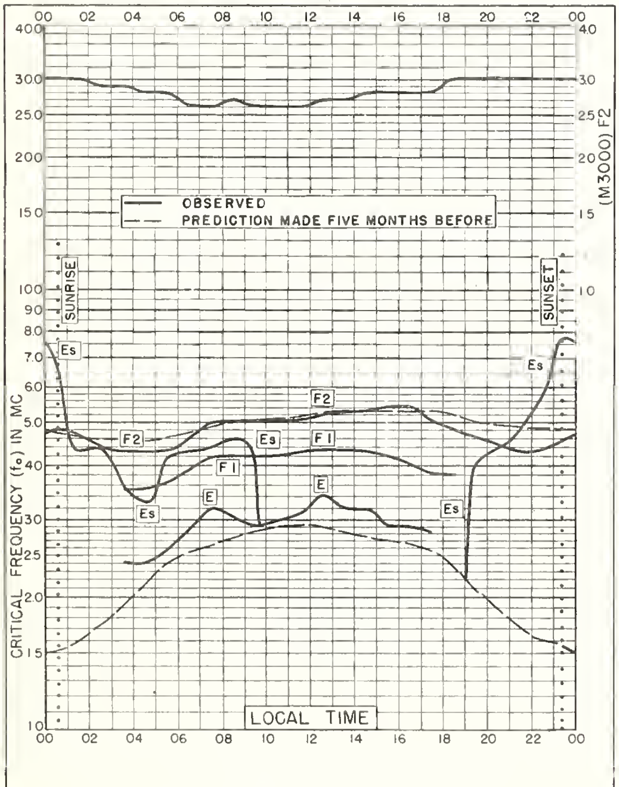


Fig. 3. POINT BARROW, ALASKA
71.3°N, 156.8°W MAY 1951

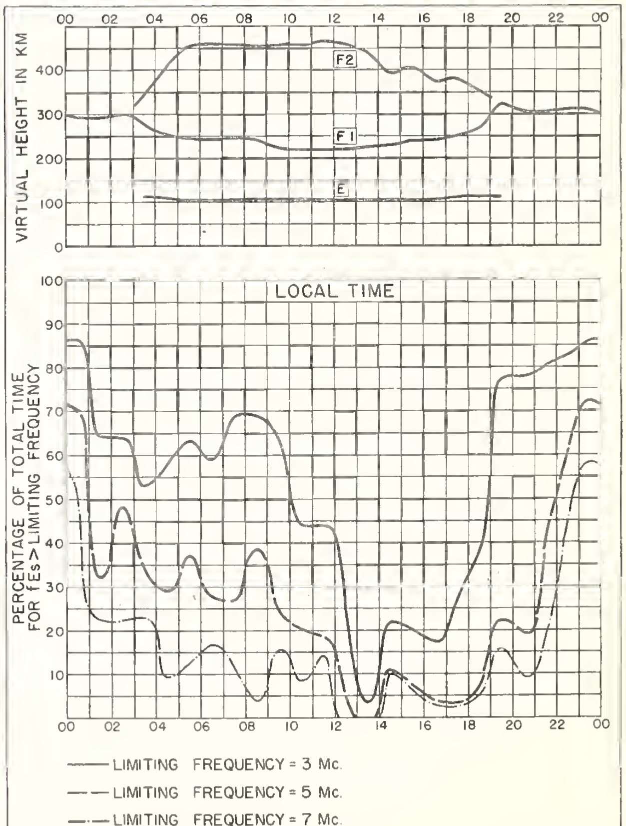


Fig. 4. POINT BARROW, ALASKA MAY 1951

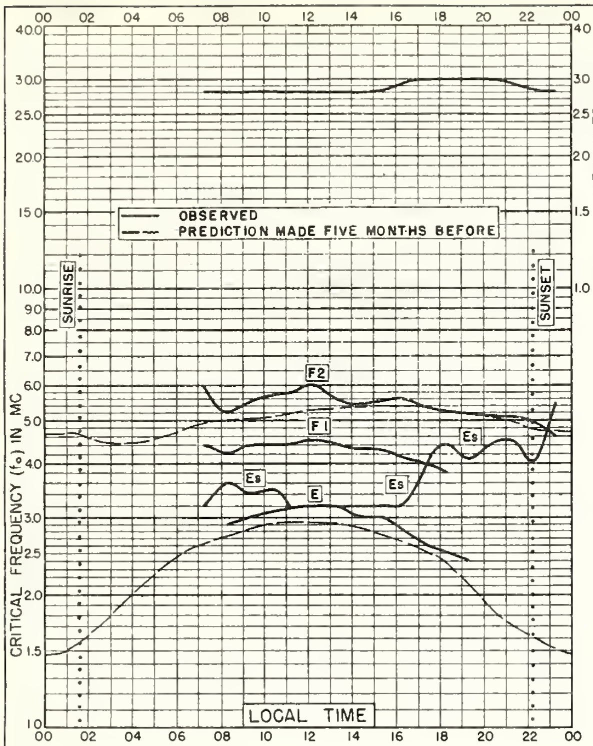


Fig. 5. TROMSO, NORWAY
69.7°N, 19.0°E MAY 1951

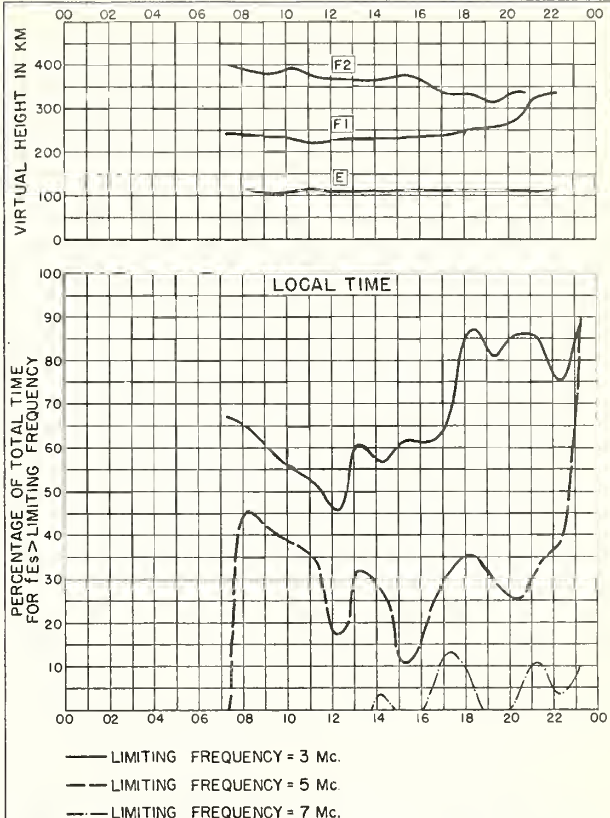


Fig. 6. TROMSO, NORWAY MAY 1951

NBS 490

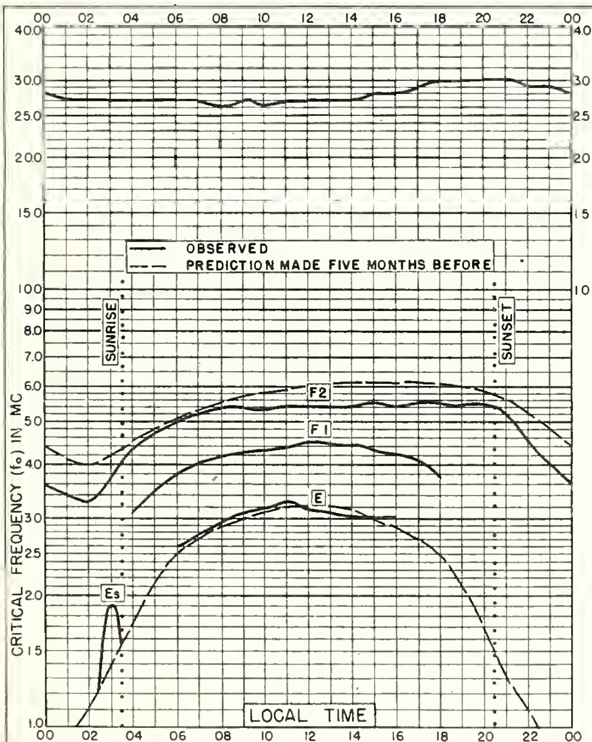


Fig. 7. ANCHORAGE, ALASKA
61.2°N, 149.9°W MAY 1951

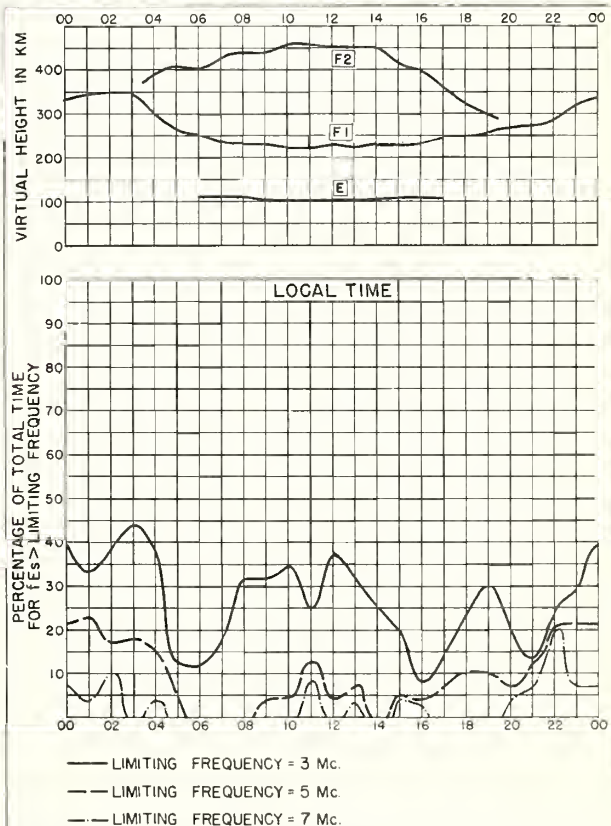


Fig. 8. ANCHORAGE, ALASKA MAY 1951

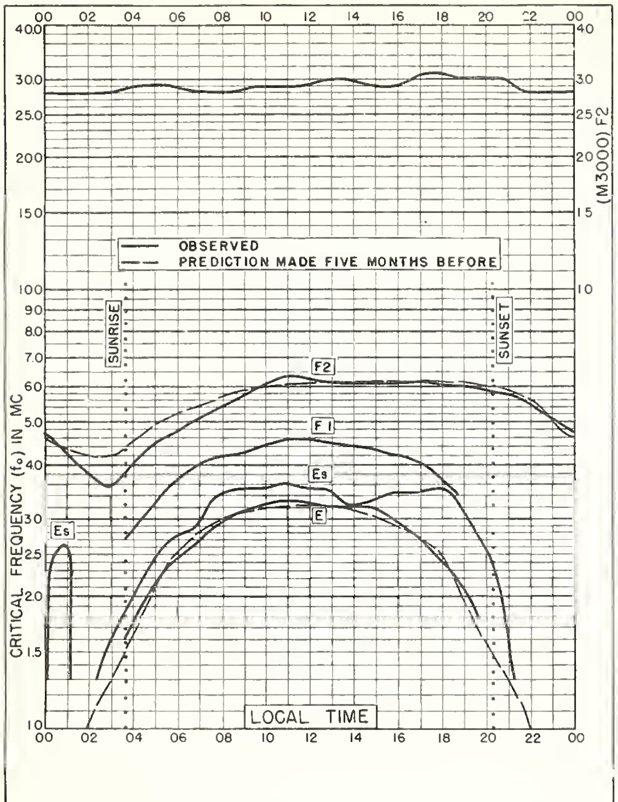


Fig. 9. OSLO, NORWAY
60.0°N, 11.0°E MAY 1951

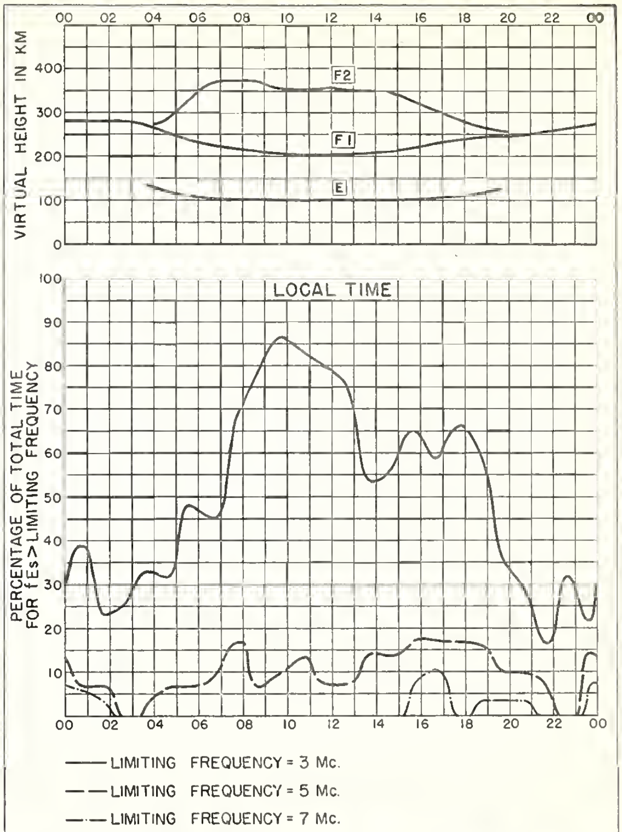


Fig. 10. OSLO, NORWAY MAY 1951

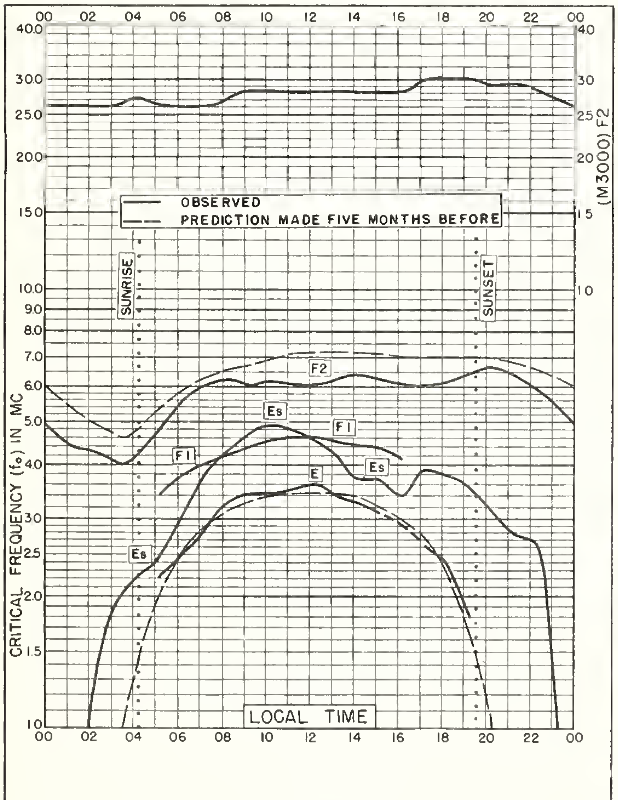


Fig. 11. ADAK, ALASKA
51.9°N, 176.6° W MAY 1951

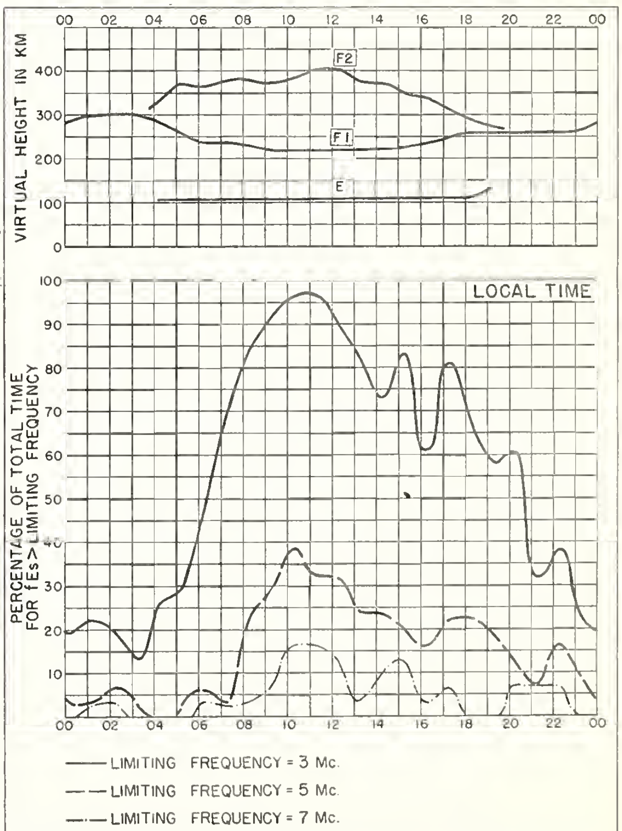


Fig. 12. ADAK, ALASKA MAY 1951

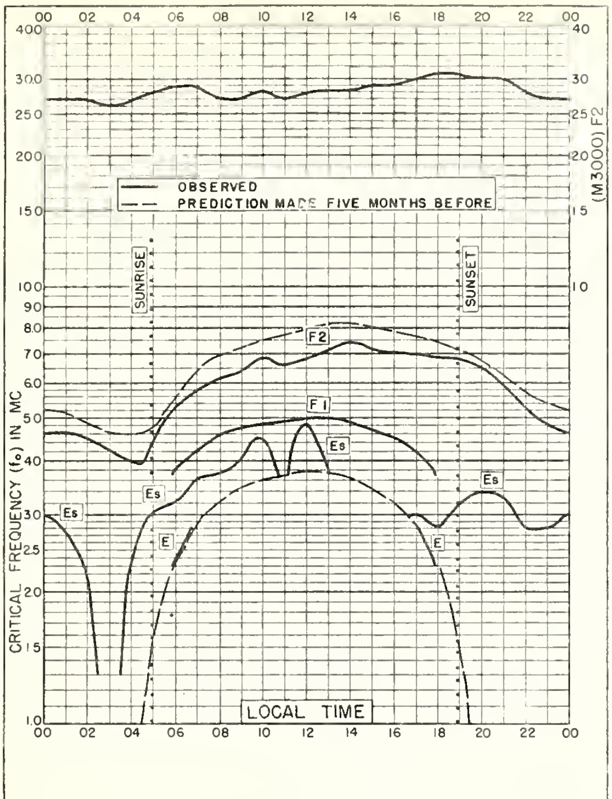


Fig. 13. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W MAY 1951

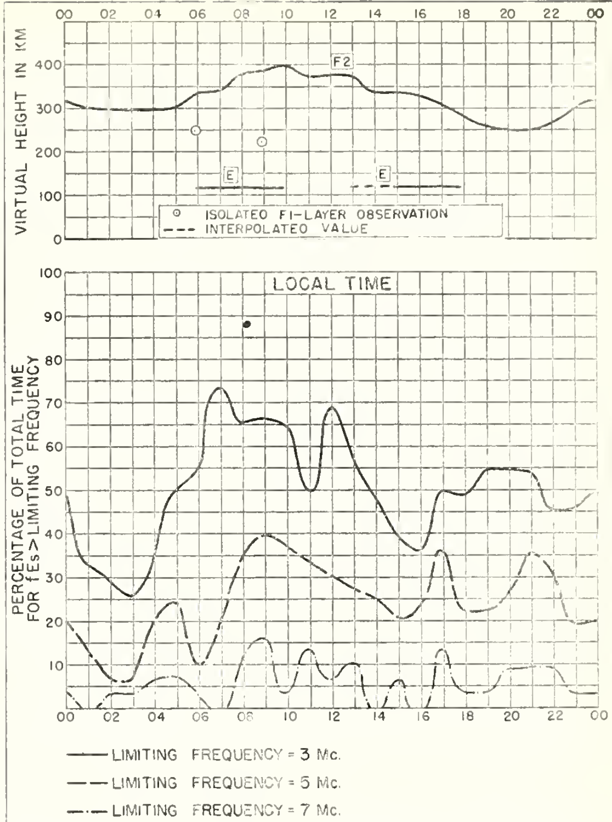


Fig. 14. SAN FRANCISCO, CALIFORNIA MAY 1951

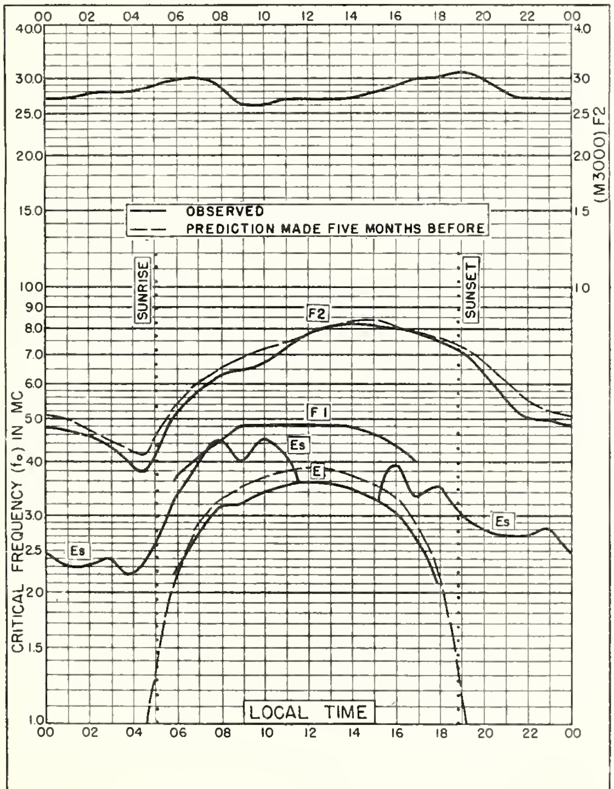


Fig. 15. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W MAY 1951

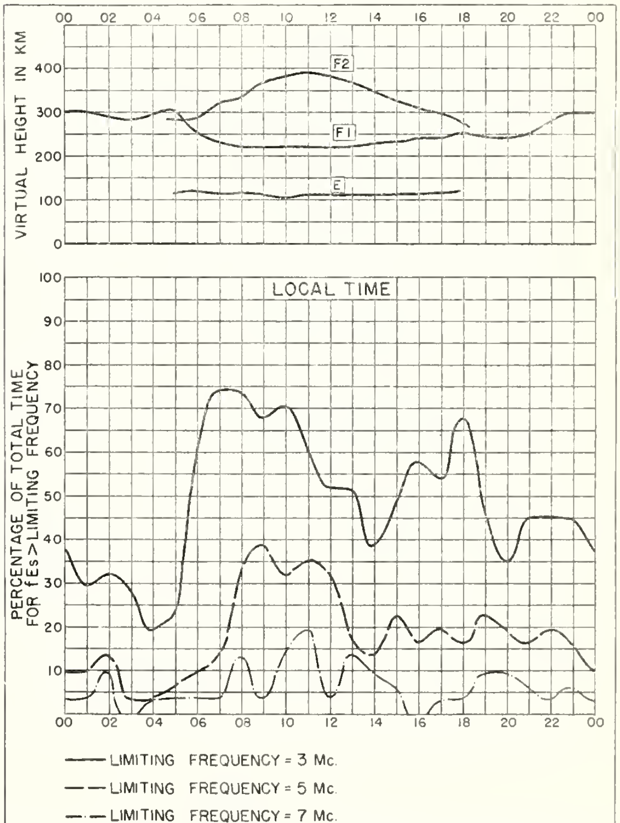


Fig. 16. WHITE SANDS, NEW MEXICO MAY 1951

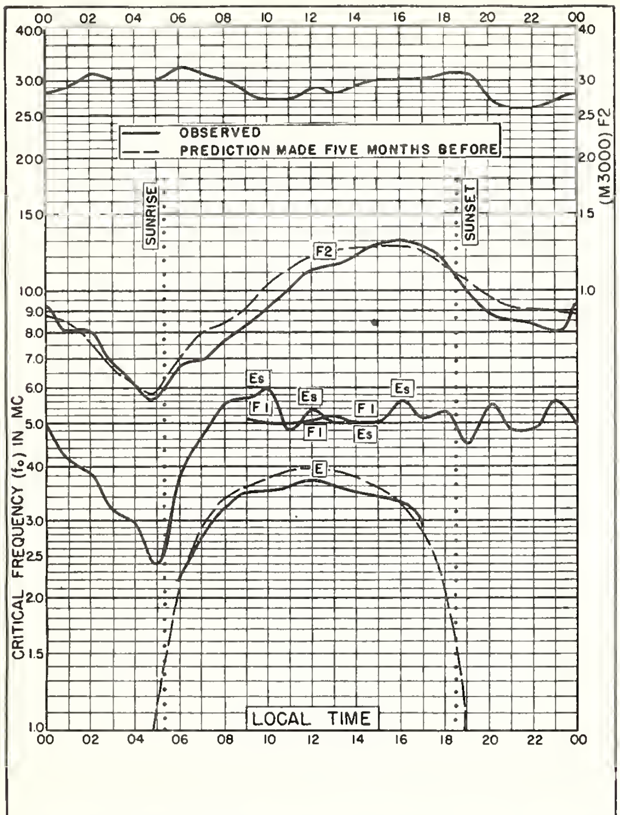


Fig. 17. OKINAWA I.
26.3°N, 127.8°E MAY 1951

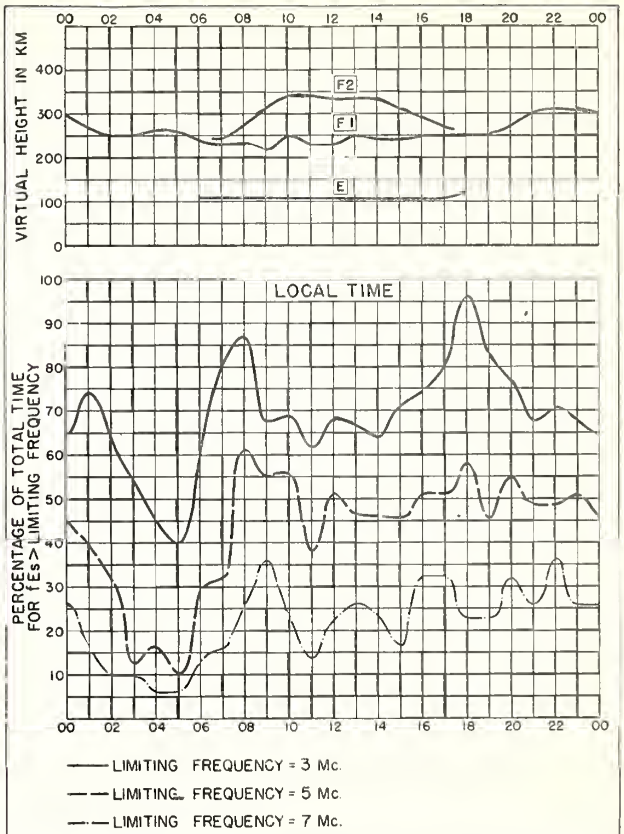


Fig. 18. OKINAWA I. MAY 1951

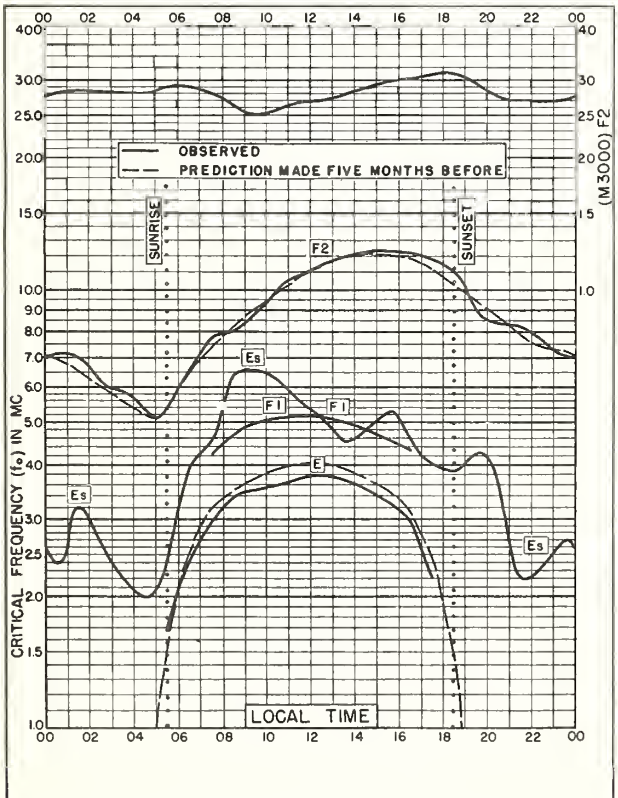


Fig. 19. MAUI, HAWAII
20.8°N, 156.5°W MAY 1951

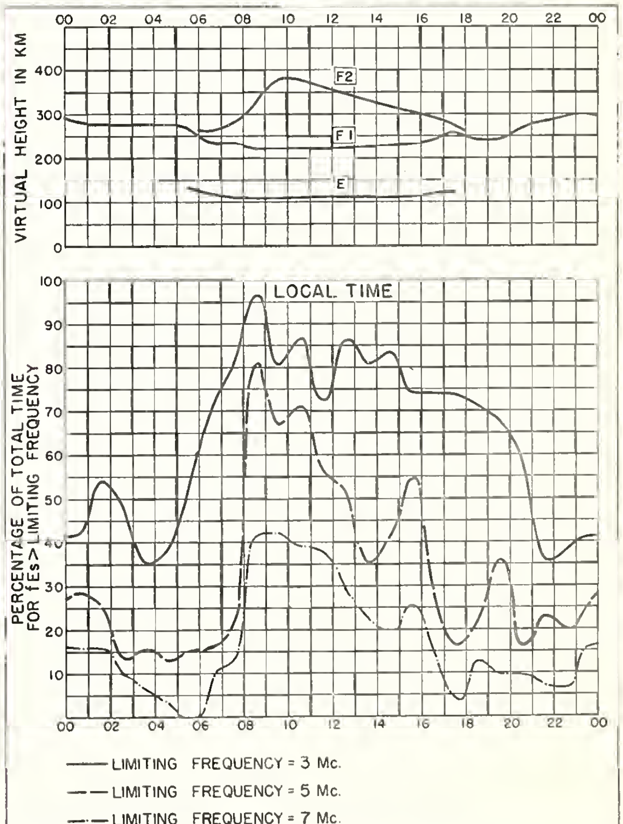


Fig. 20. MAUI, HAWAII MAY 1951

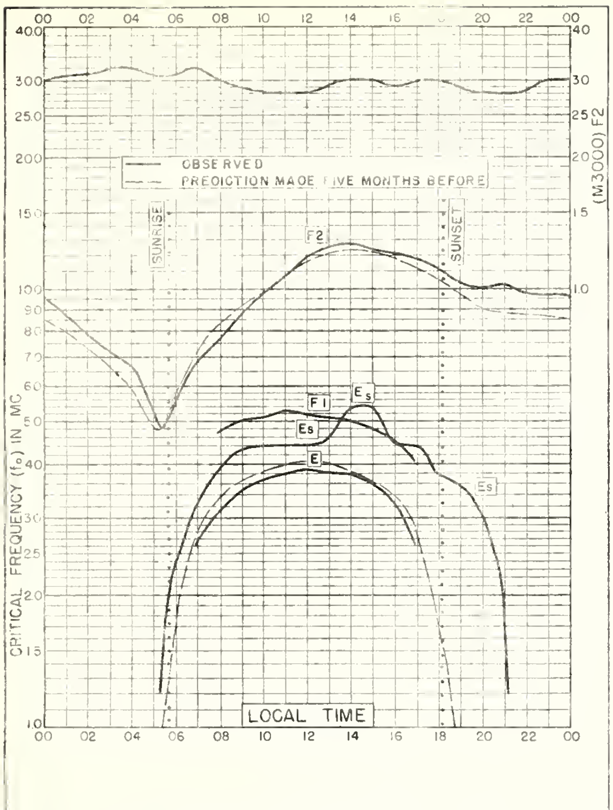


Fig 21. TRINIDAD, BRIT. WEST INDIES
10.7°N, 61.6°W MAY 1951

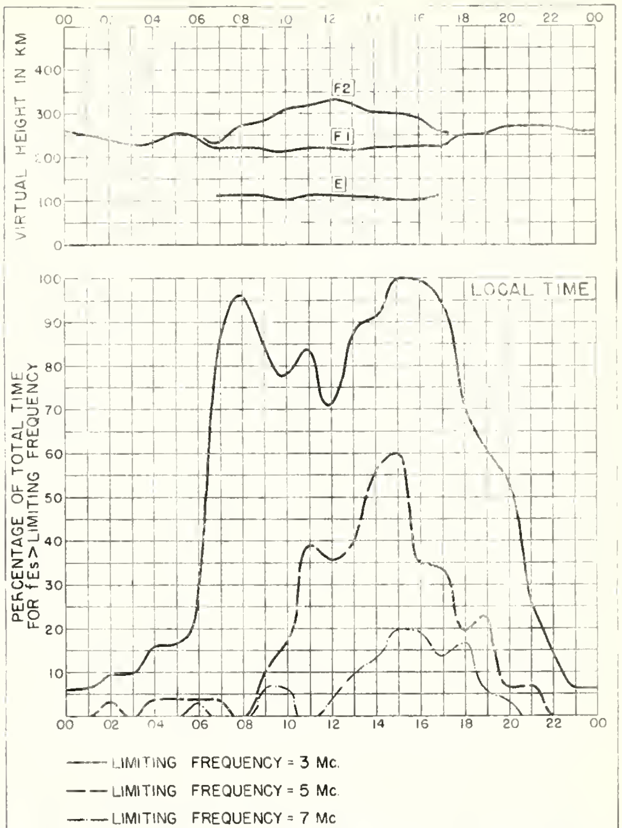


Fig. 22. TRINIDAD, BRIT. WEST INDIES MAY 1951

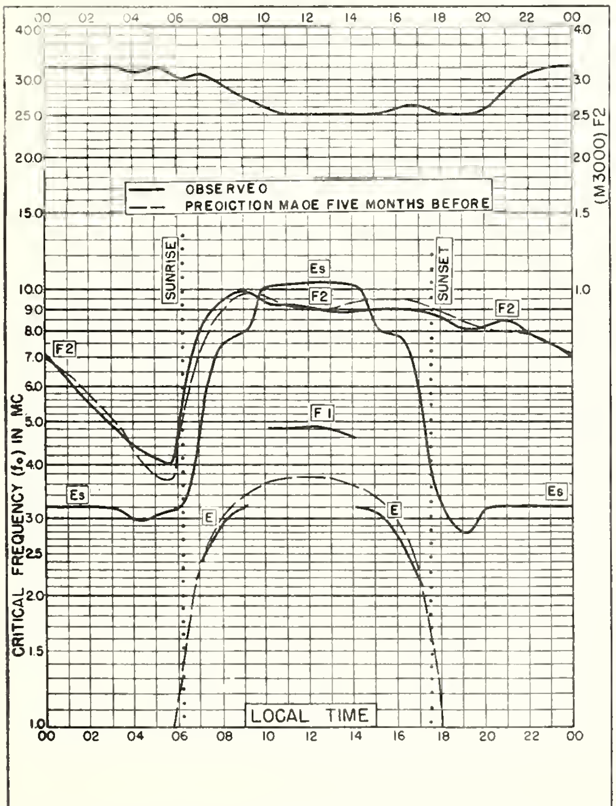


Fig. 23. HUANCAYO, PERU
12.0°S, 75.3°W MAY 1951

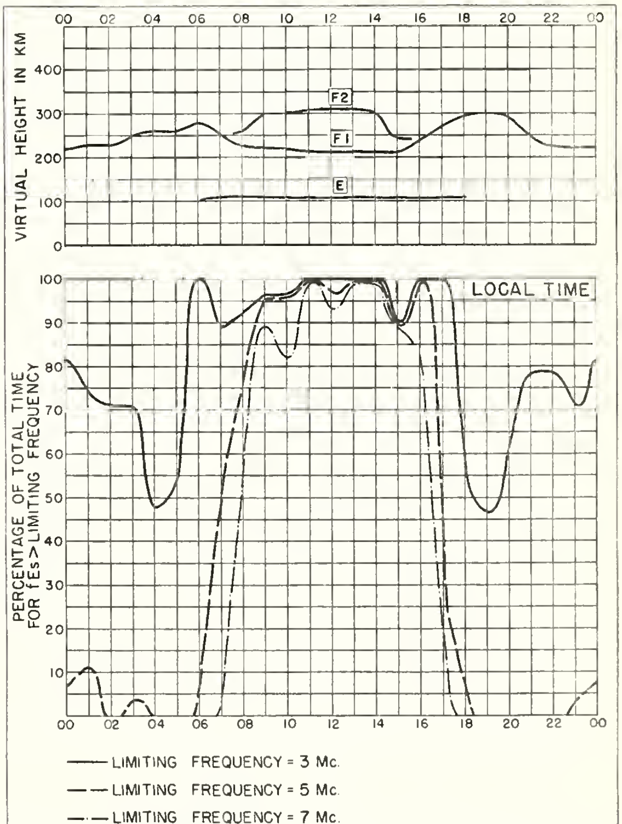


Fig. 24. HUANCAYO, PERU MAY 1951

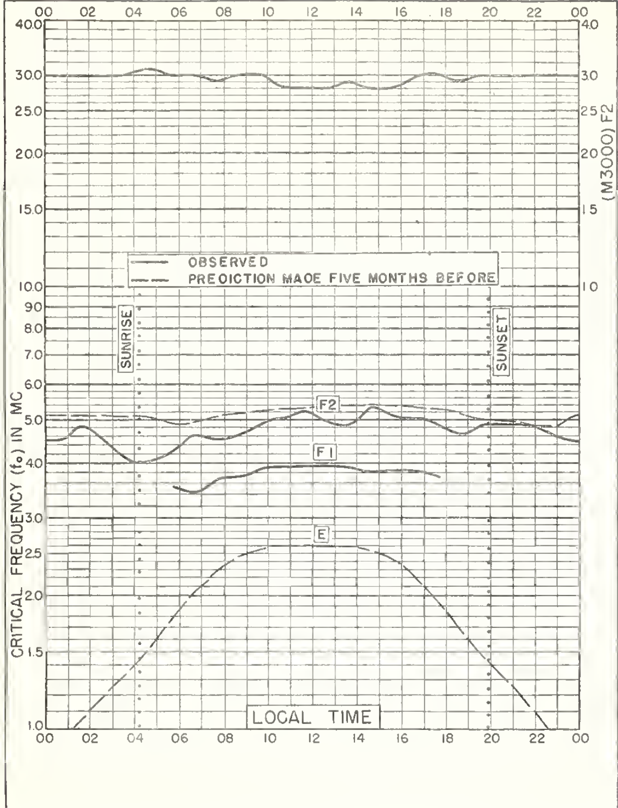


Fig. 25. RESOLUTE BAY, CANADA
74.7°N, 94.9°W APRIL 1951

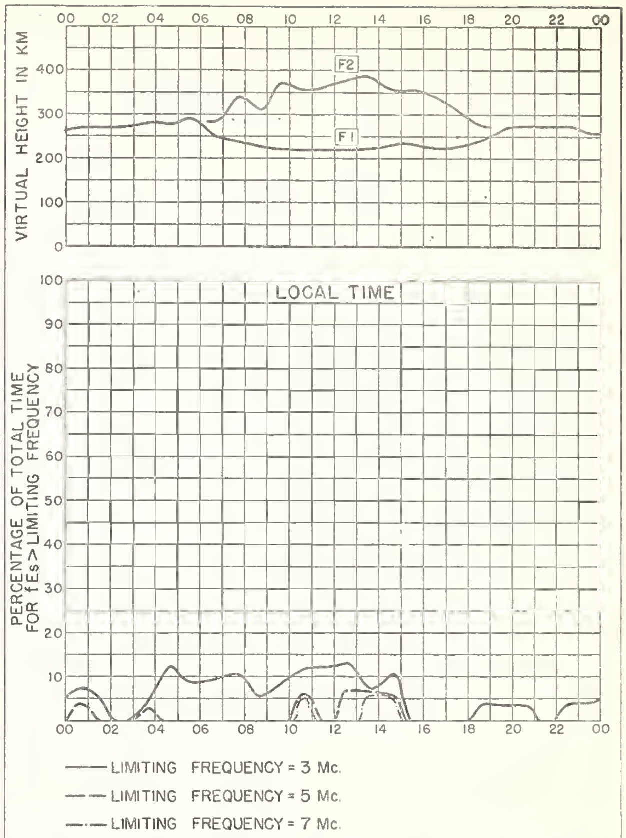


Fig. 26. RESOLUTE BAY, CANADA APRIL 1951

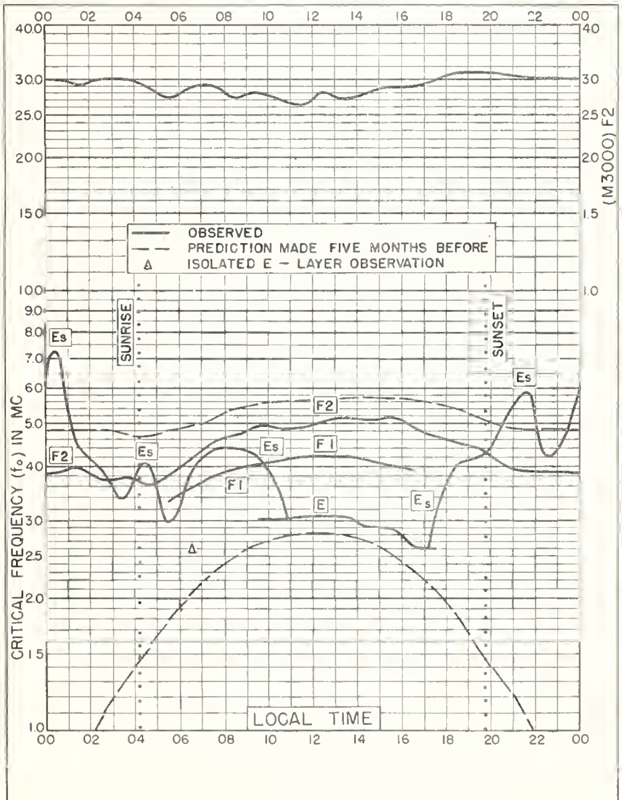


Fig. 27. POINT BARROW, ALASKA
71.3°N, 156.8°W APRIL 1951

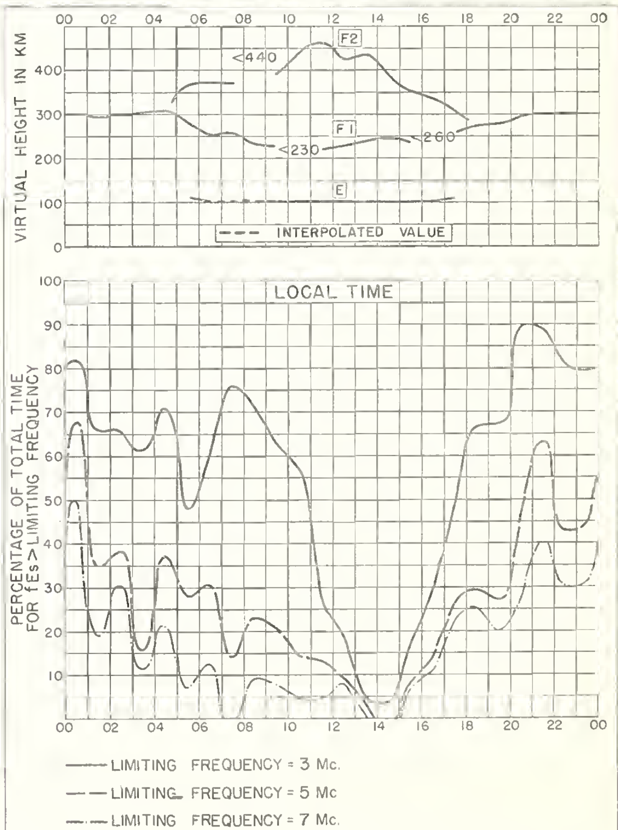


Fig. 28. POINT BARROW, ALASKA APRIL 1951

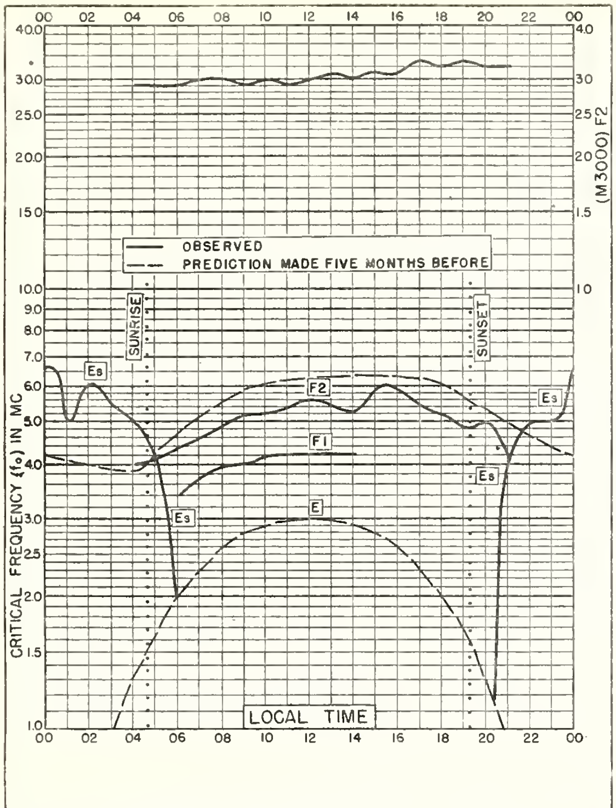


Fig. 29. FAIRBANKS, ALASKA
64.9°N, 147.8°W APRIL 1951

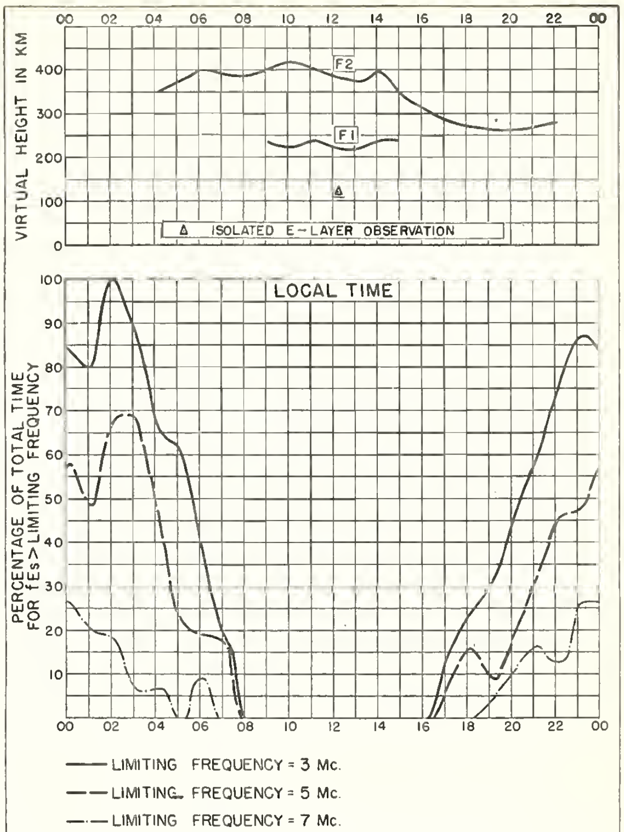


Fig. 30. FAIRBANKS, ALASKA APRIL 1951

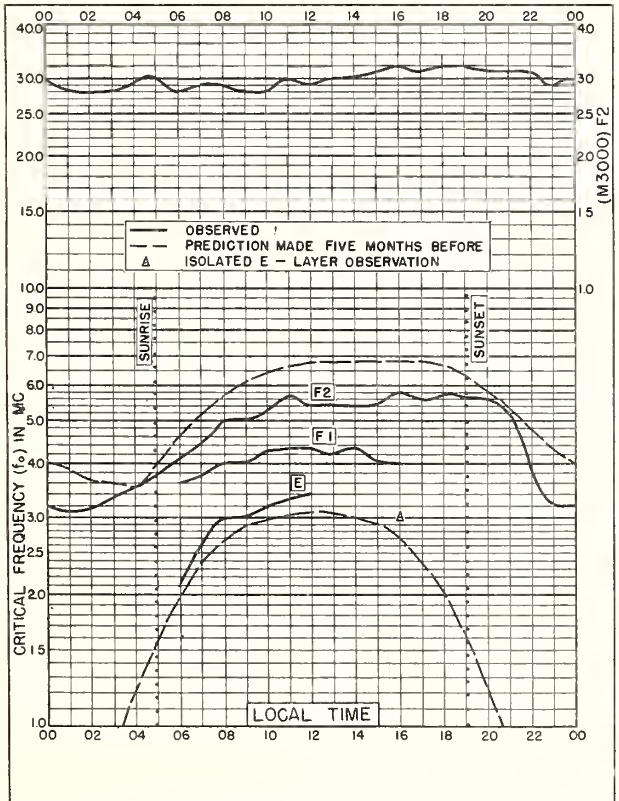


Fig. 31. ANCHORAGE, ALASKA
61.2°N, 149.9°W APRIL 1951

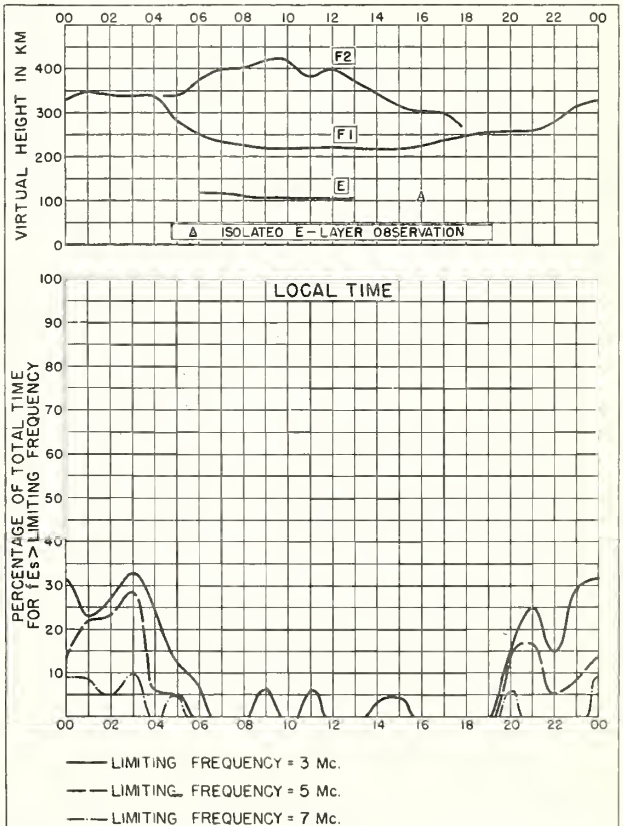


Fig. 32. ANCHORAGE, ALASKA APRIL 1951

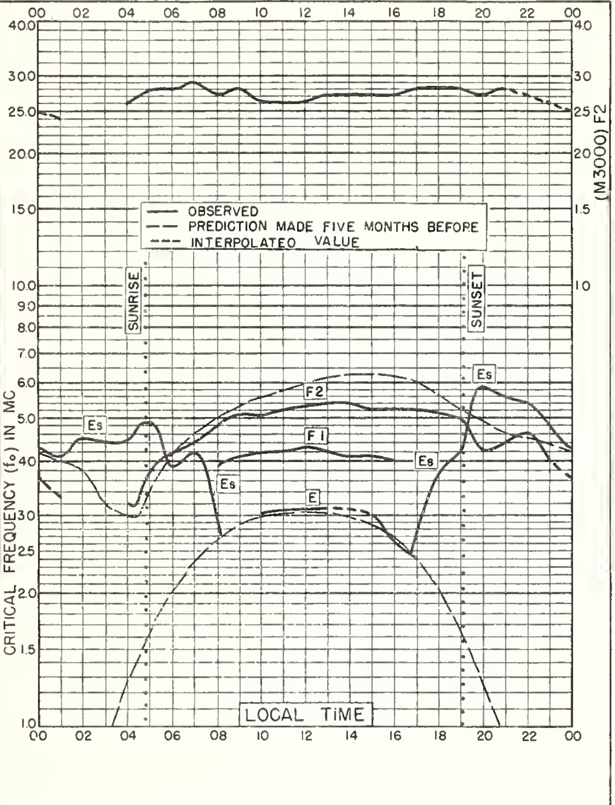


Fig. 33. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W APRIL 1951

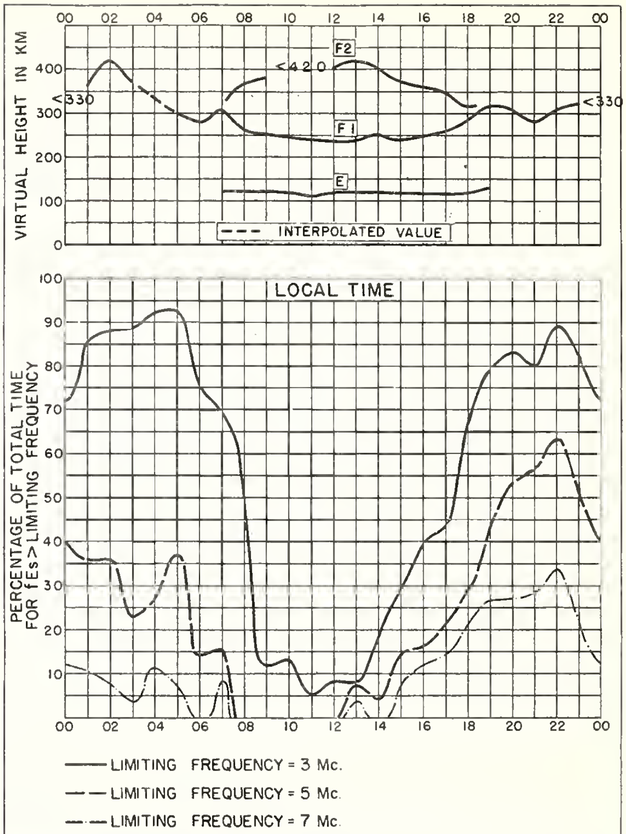


Fig. 34. NARSARSSUAK, GREENLAND APRIL 1951

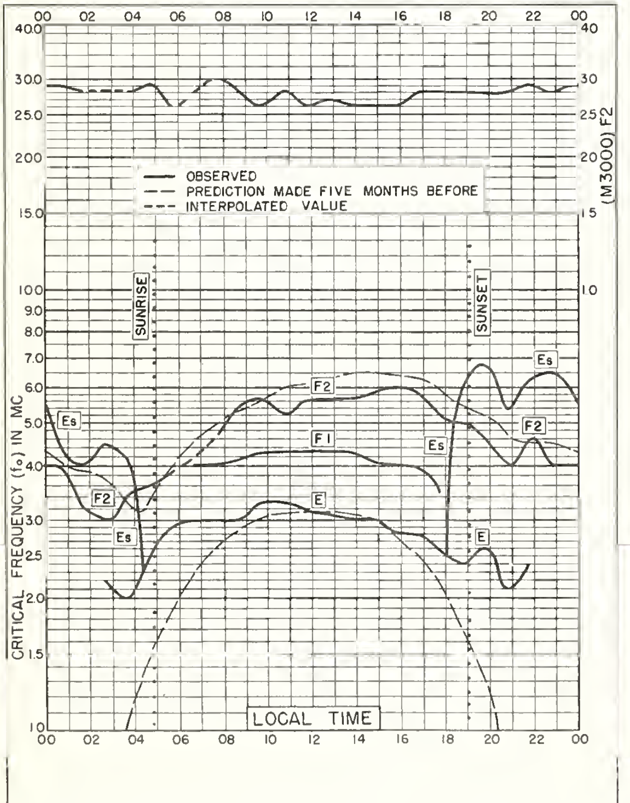


Fig 35. CHURCHILL, CANADA
58.8°N, 94.2°W APRIL 1951

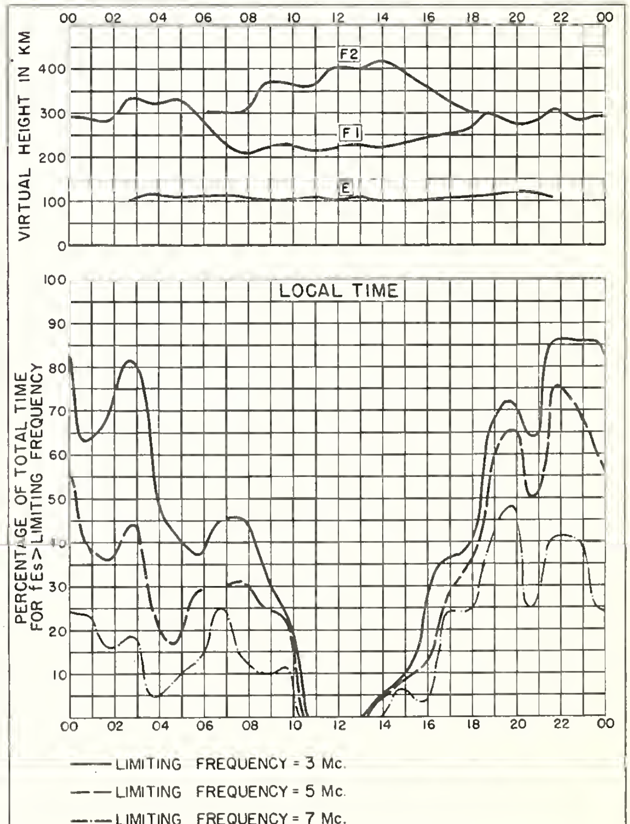


Fig 36. CHURCHILL, CANADA APRIL 1951

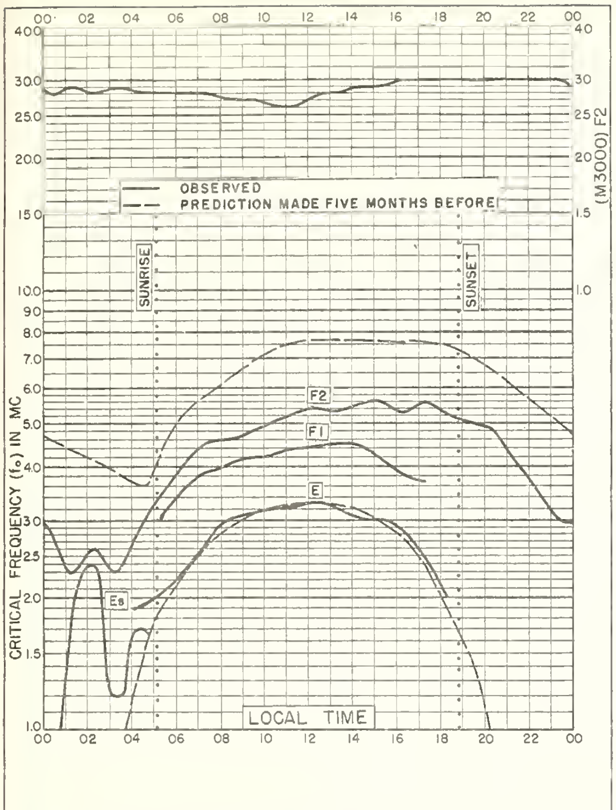


Fig. 37. PRINCE RUPERT, CANADA
54.3°N, 130.3°W APRIL 1951

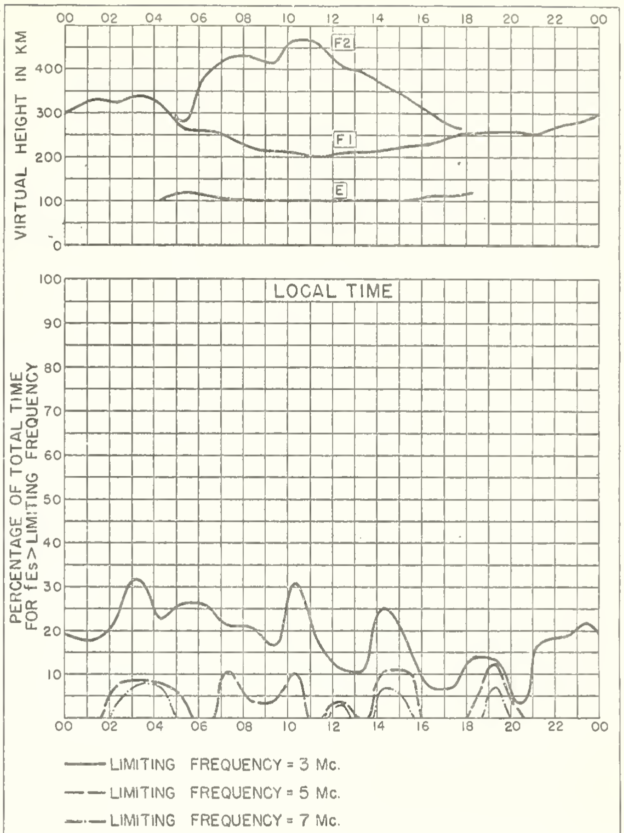


Fig. 38. PRINCE RUPERT, CANADA APRIL 1951

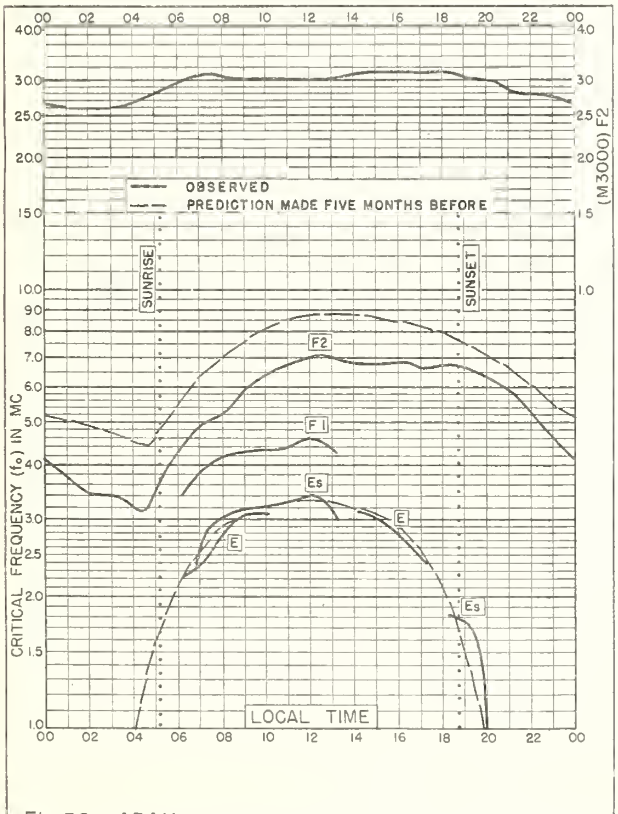


Fig. 39. ADAK, ALASKA
51.9°N, 176.6°W APRIL 1951

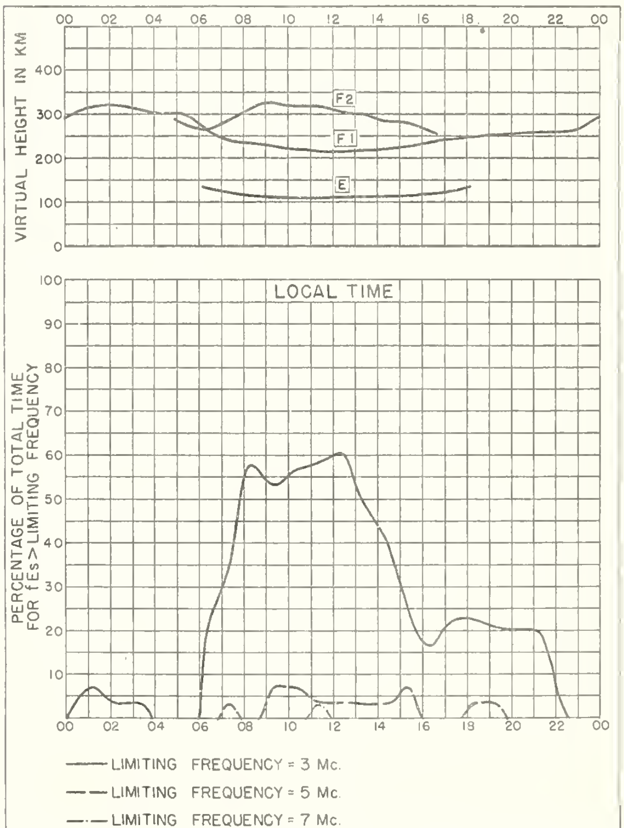


Fig. 40. ADAK, ALASKA APRIL 1951

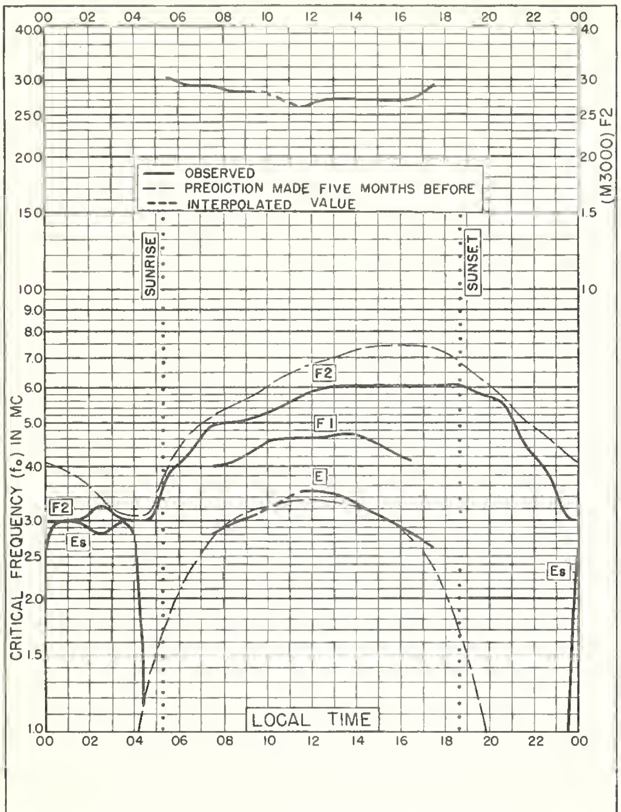


Fig. 41. WINNIPEG, CANADA
49.9°N, 97.4°W APRIL 1951

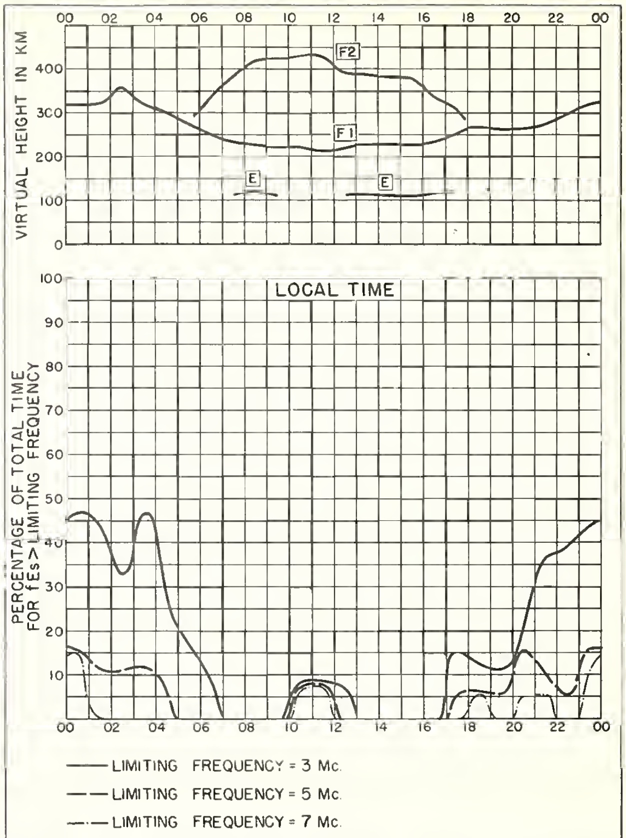


Fig. 42. WINNIPEG, CANADA APRIL 1951

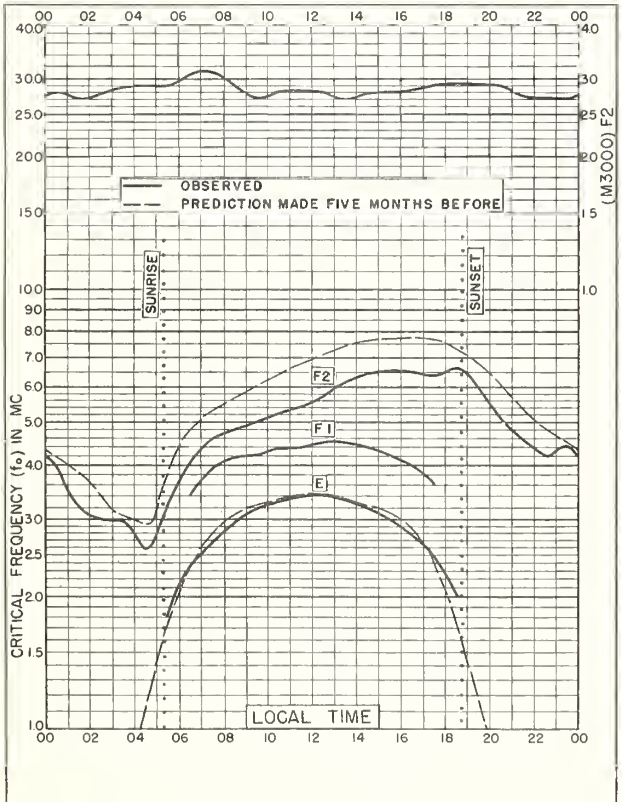


Fig. 43. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W APRIL 1951

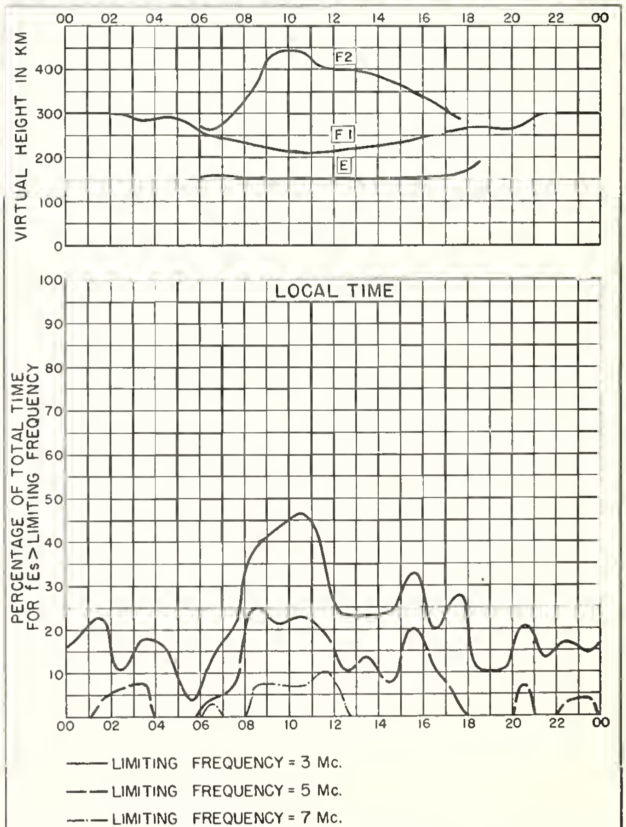


Fig. 44. ST. JOHN'S, NEWFOUNDLAND APRIL 1951

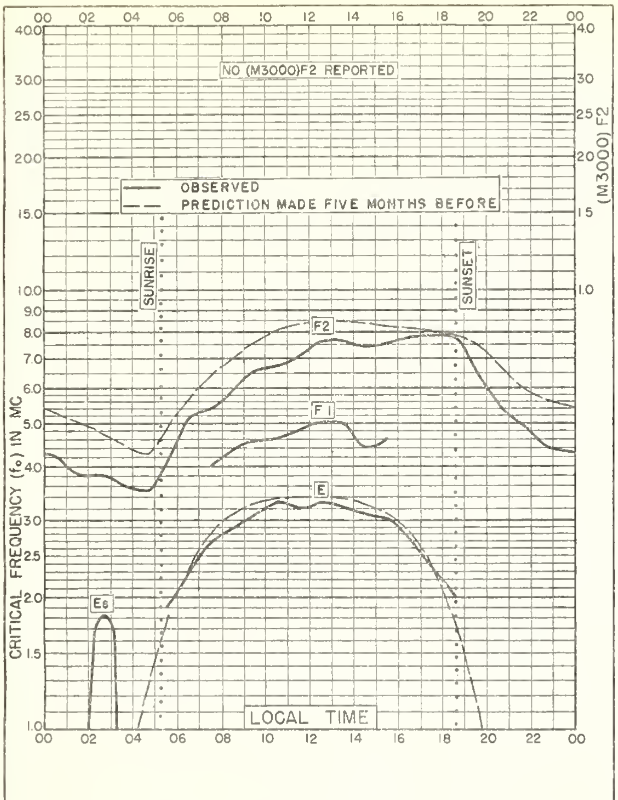


Fig. 45. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E APRIL 1951

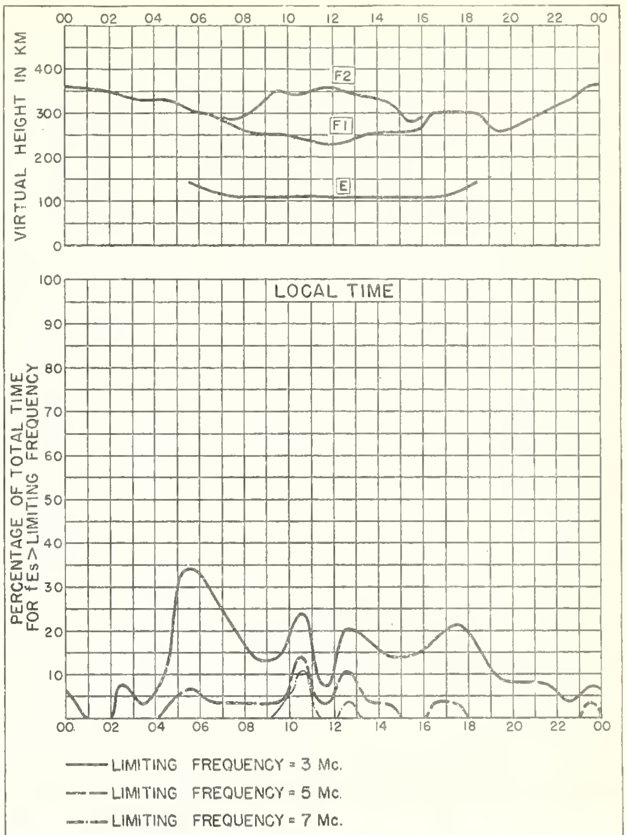


Fig. 46. SCHWARZENBURG, SWITZERLAND APRIL 1951

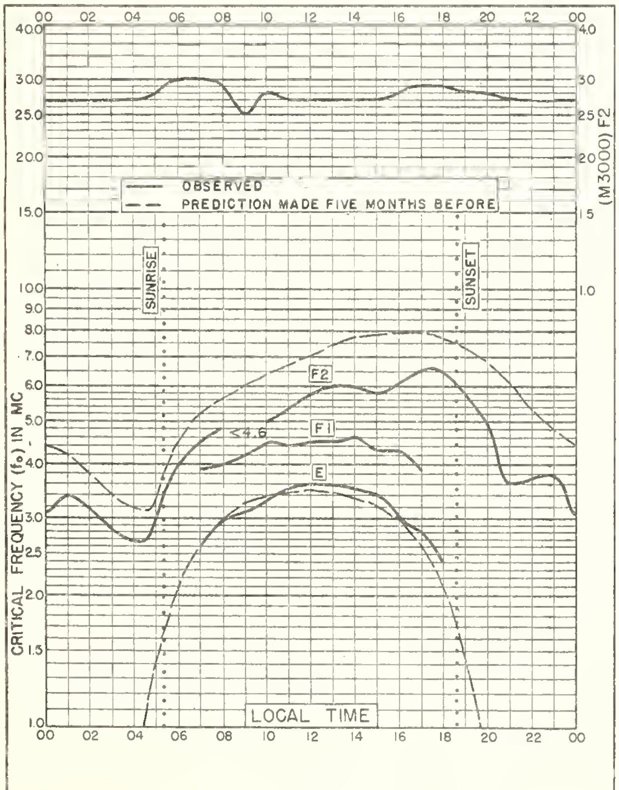


Fig. 47. OTTAWA, CANADA
45.4°N, 75.7°W APRIL 1951

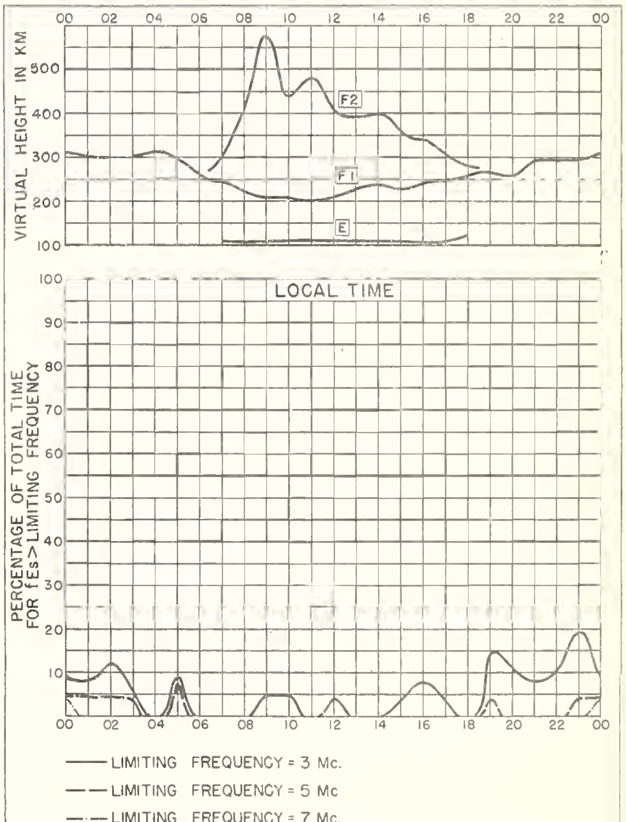


Fig. 48. OTTAWA, CANADA APRIL 1951

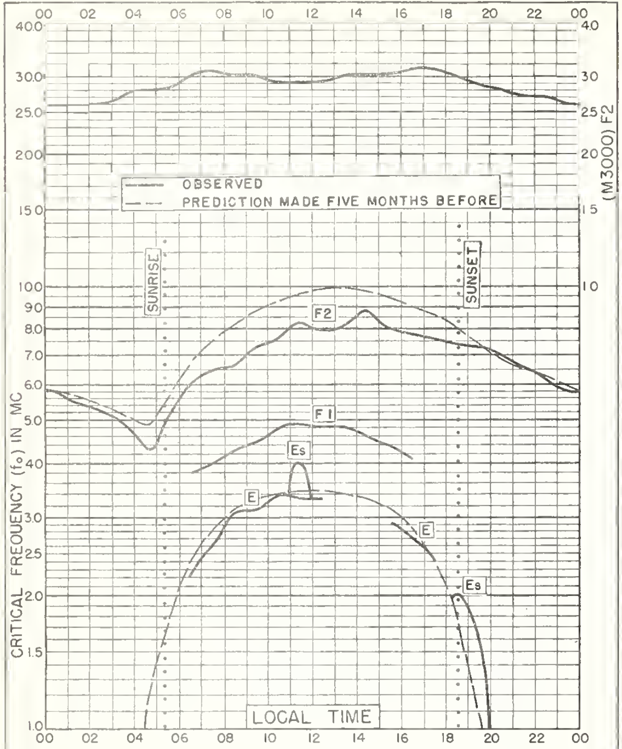


Fig. 49. WAKKANAI, JAPAN
45.4°N, 141.7°E APRIL 1951

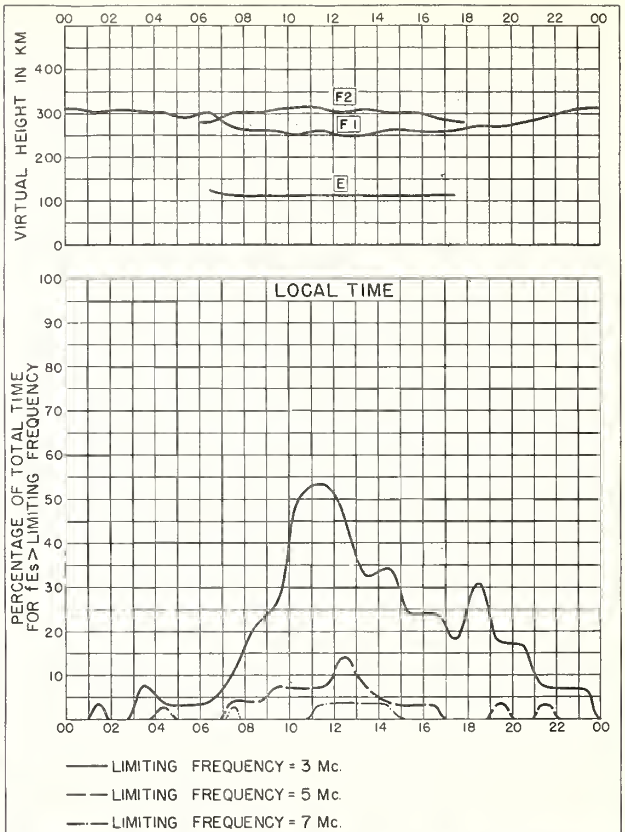


Fig. 50. WAKKANAI, JAPAN APRIL 1951

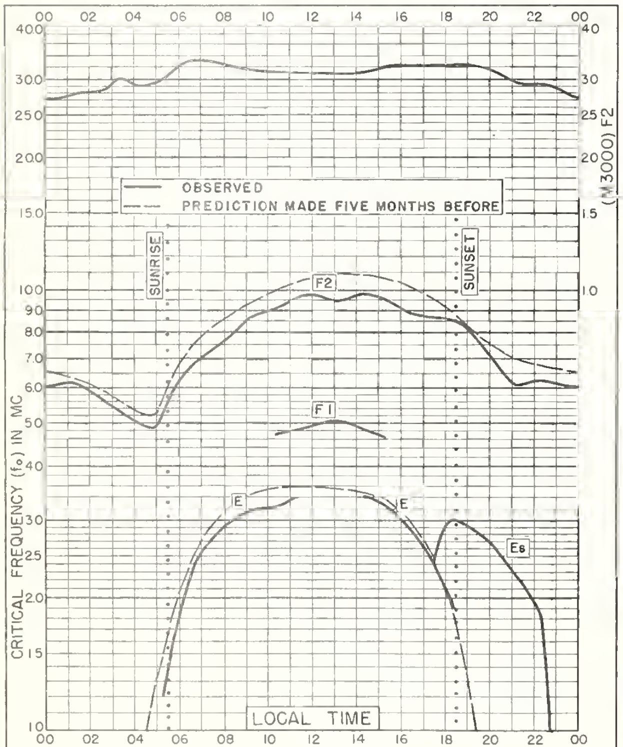


Fig. 51. AKITA, JAPAN
39.7°N, 140.1°E APRIL 1951

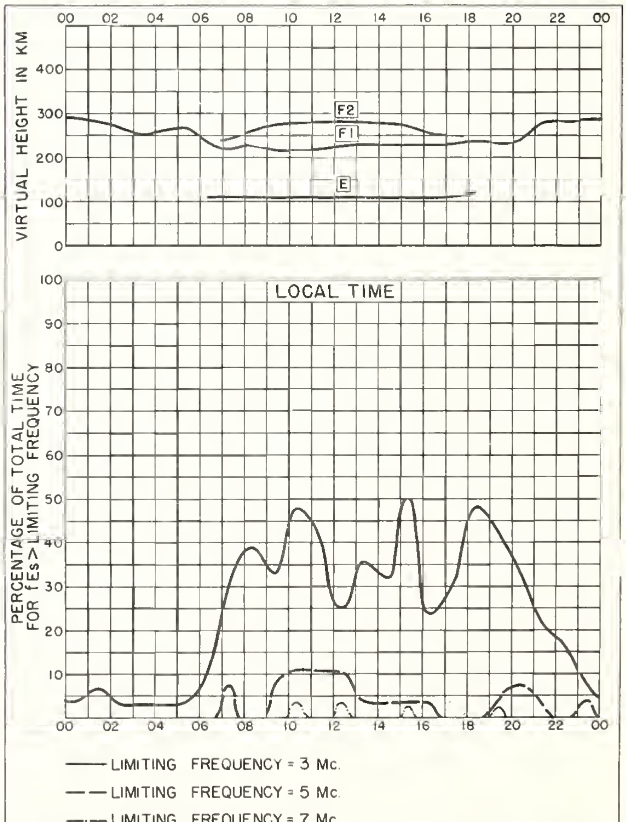


Fig. 52. AKITA, JAPAN APRIL 1951

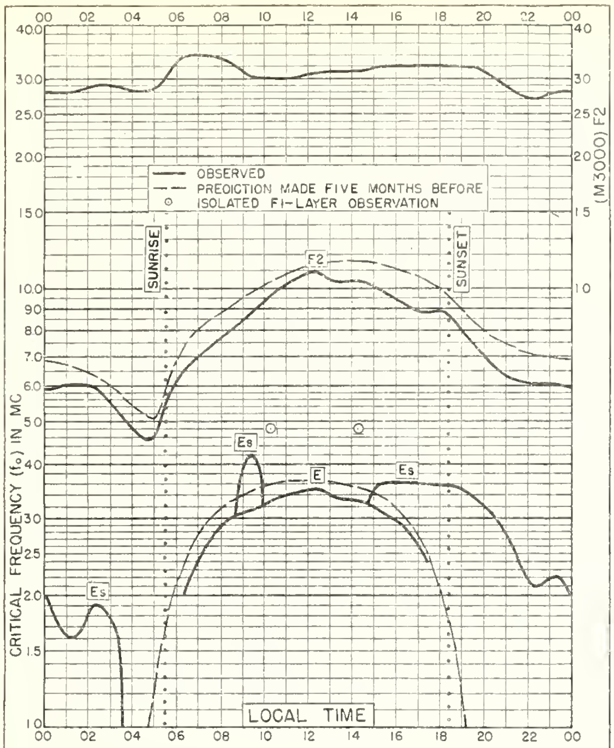


Fig. 53. TOKYO, JAPAN
35.7°N, 139.5°E APRIL 1951

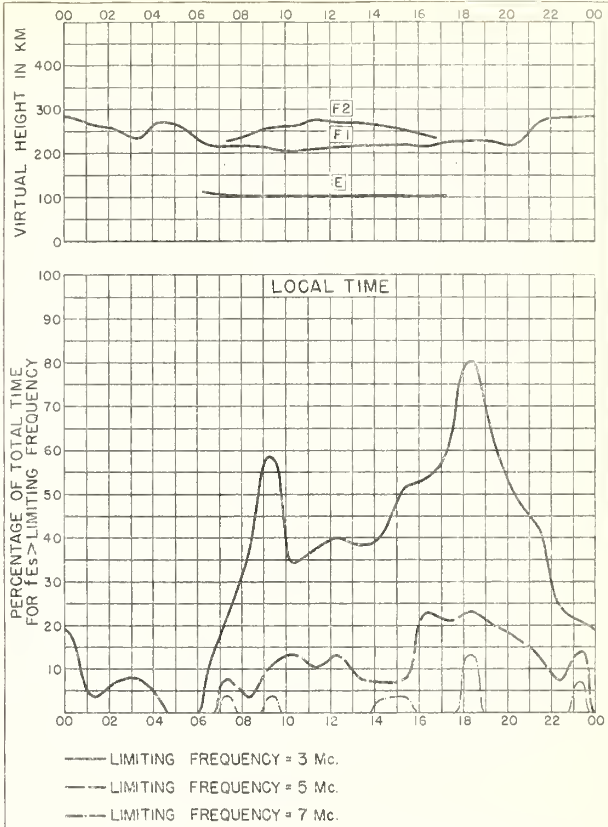


Fig. 54. TOKYO, JAPAN APRIL 1951

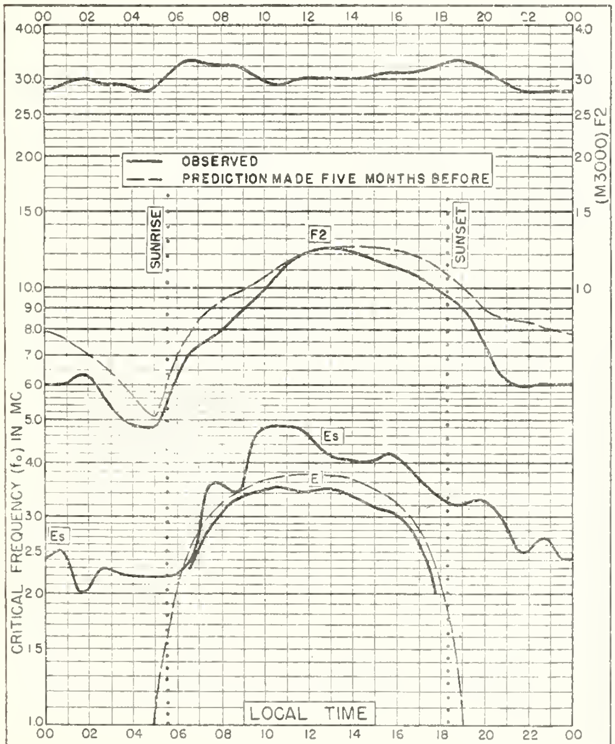


Fig. 55. YAMAGAWA, JAPAN
31.2°N, 130.6°E APRIL 1951

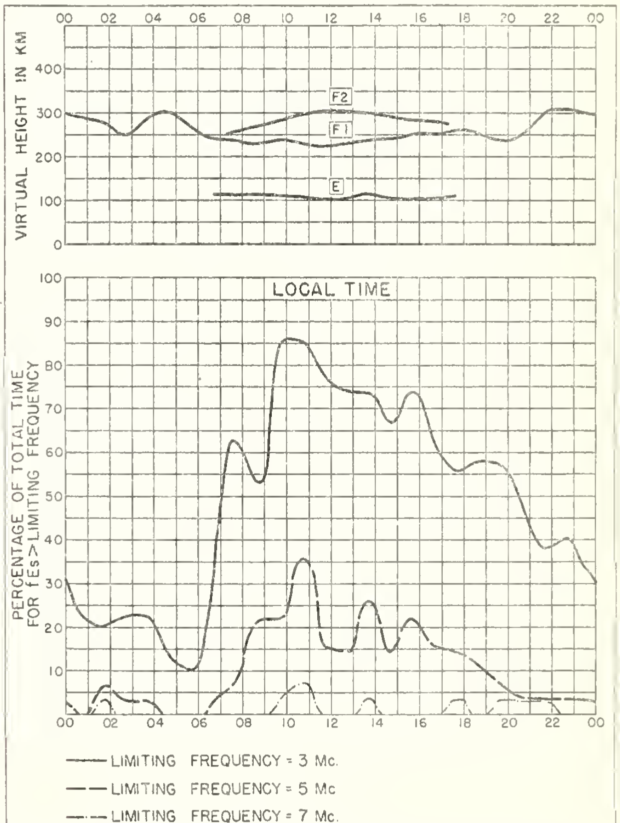


Fig. 56. YAMAGAWA, JAPAN APRIL 1951

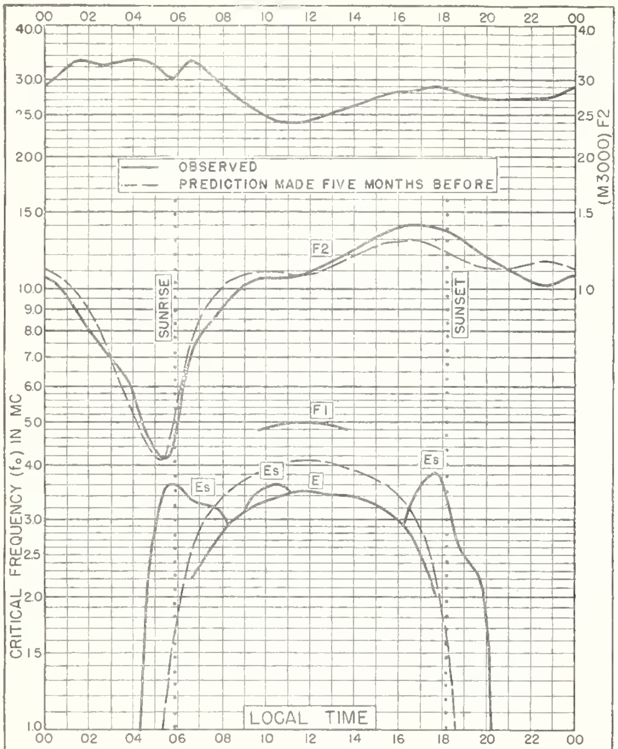


Fig. 57. GUAM I.
13.6°N, 144.9°E APRIL 1951

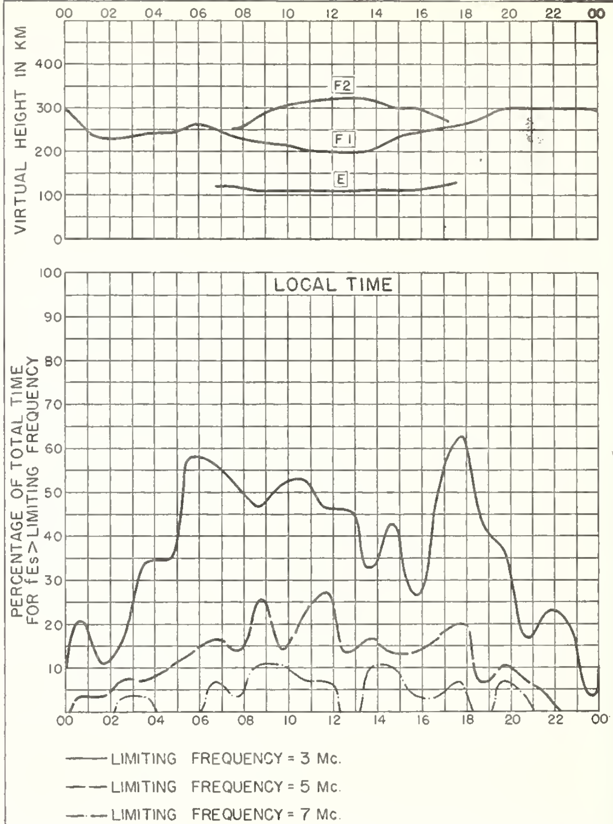


Fig. 58. GUAM I. APRIL 1951

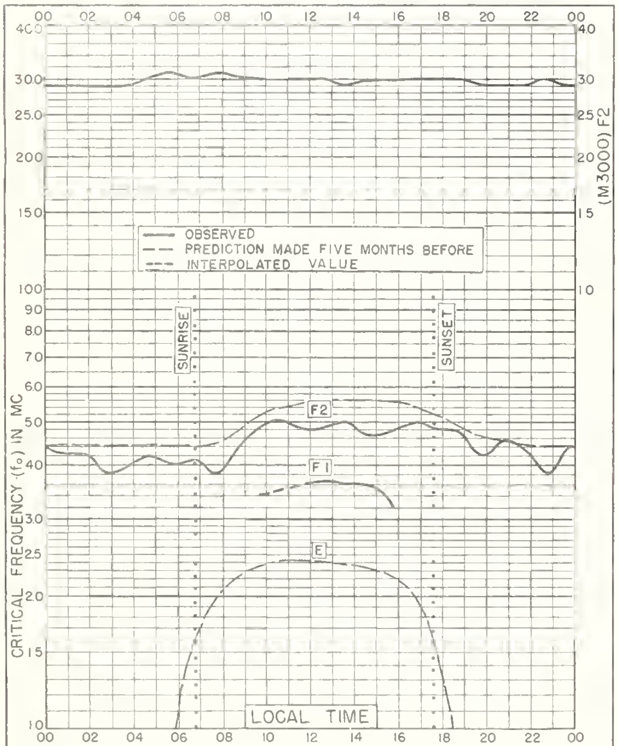


Fig. 59. RESOLUTE BAY, CANADA
74.7°N, 94.9°W MARCH 1951

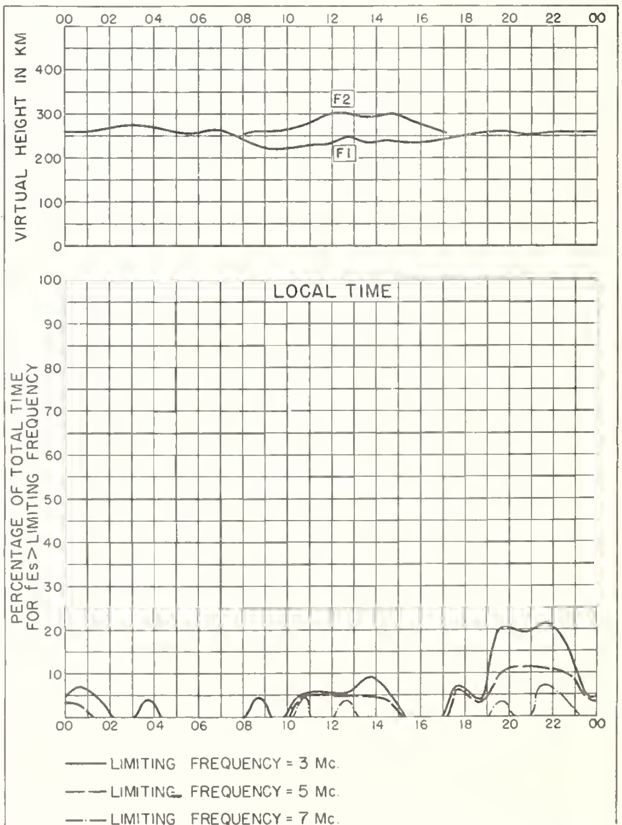


Fig. 60. RESOLUTE BAY, CANADA MARCH 1951

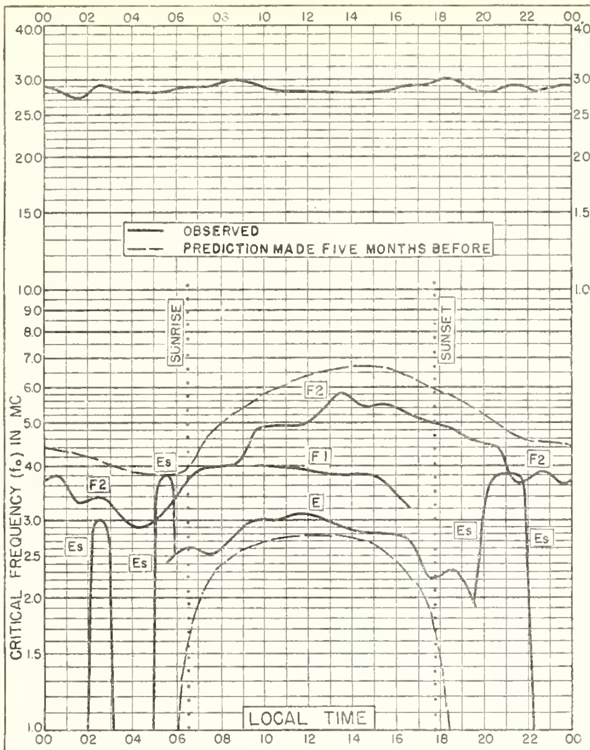


Fig. 61. BAKER LAKE, CANADA
64.3°N, 96.0°W MARCH 1951

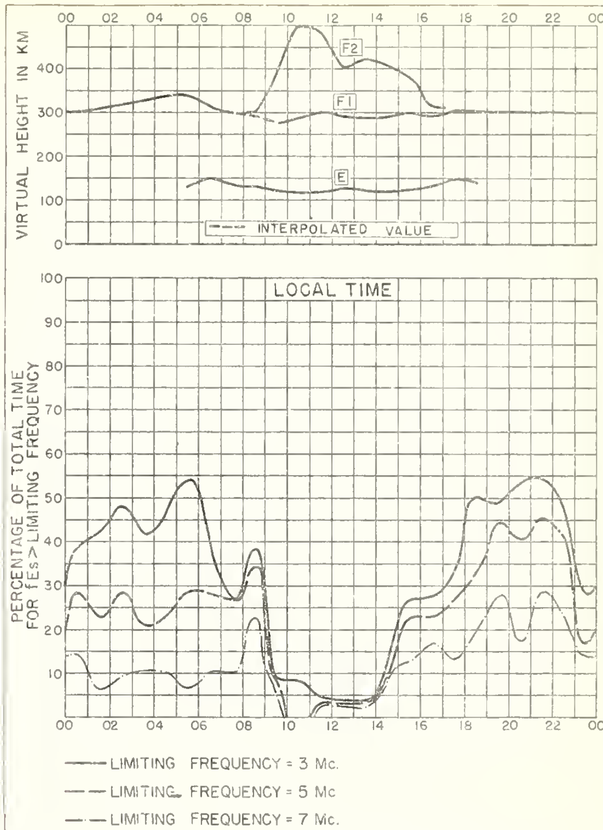


Fig. 62. BAKER LAKE, CANADA MARCH 1951

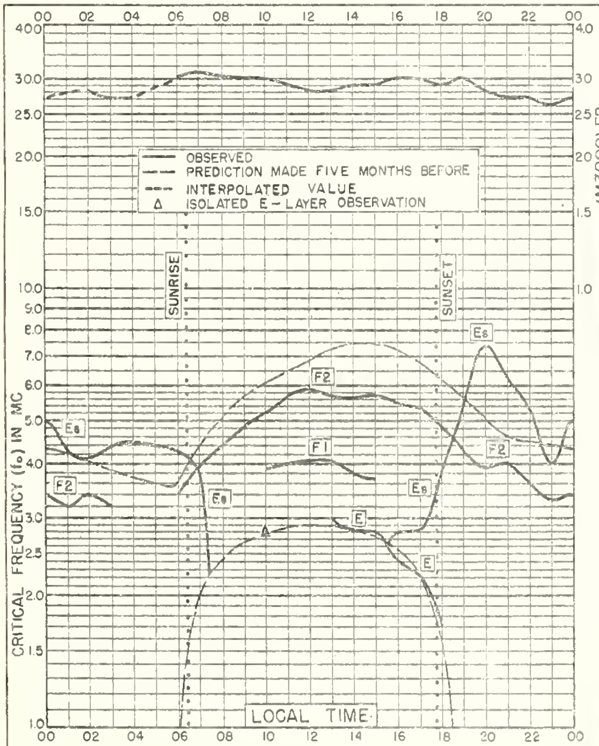


Fig. 63. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W MARCH 1951

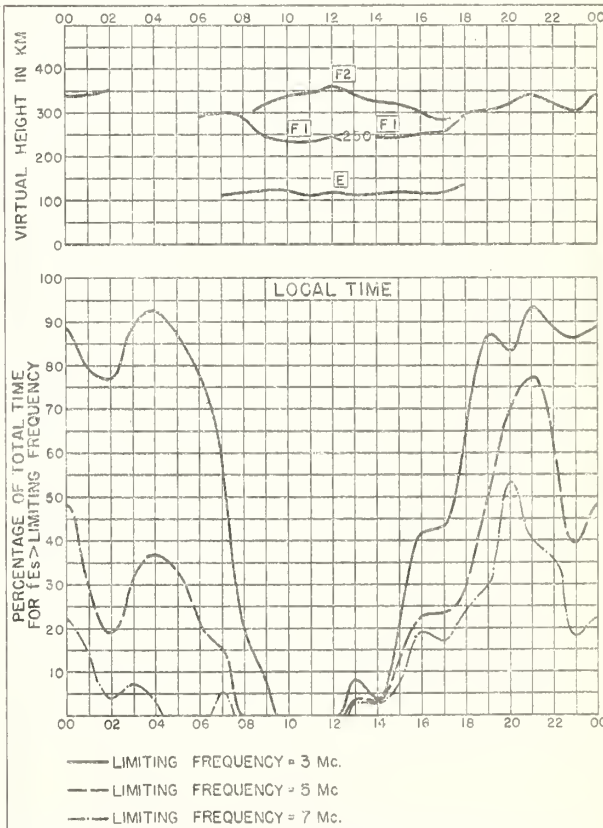


Fig. 64. NARSARSSUAK, GREENLAND MARCH 1951

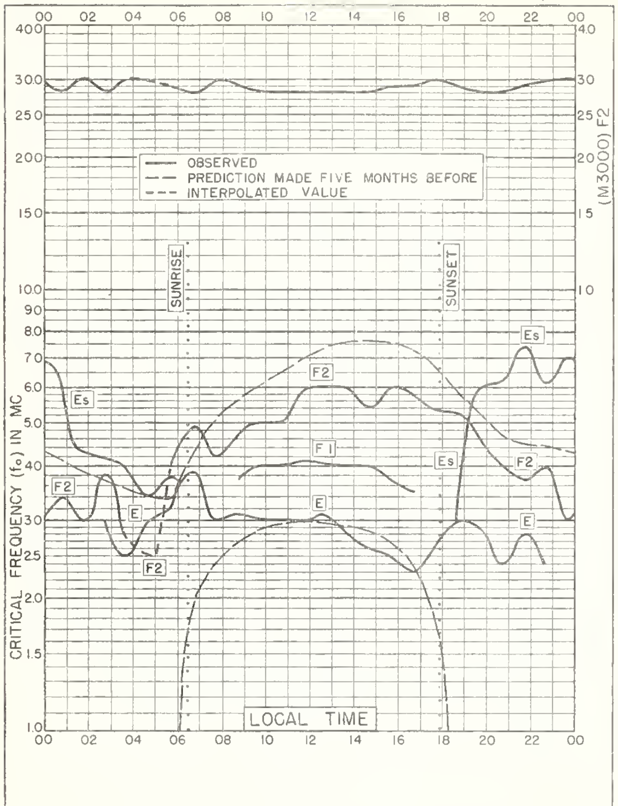


Fig. 65. CHURCHILL, CANADA
58.8°N, 94.2°W MARCH 1951

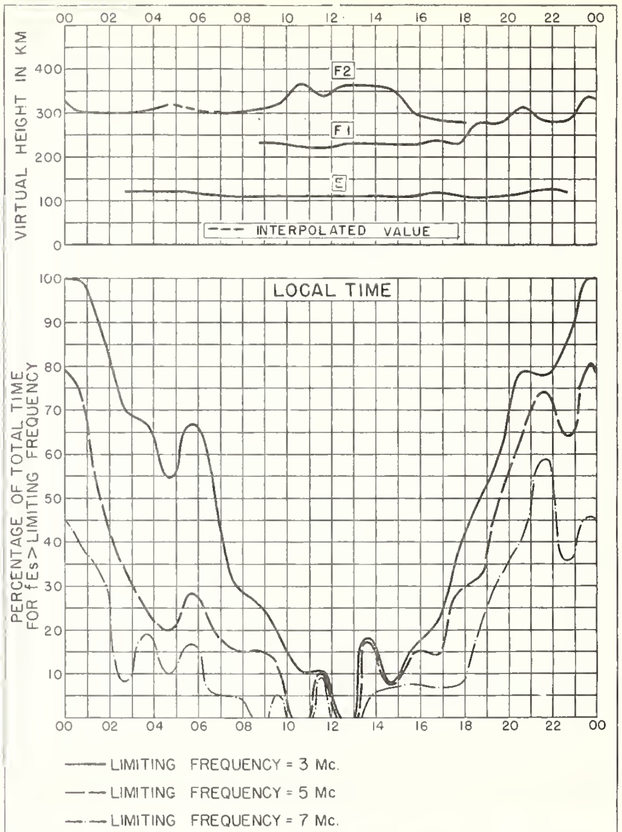


Fig. 66. CHURCHILL, CANADA MARCH 1951

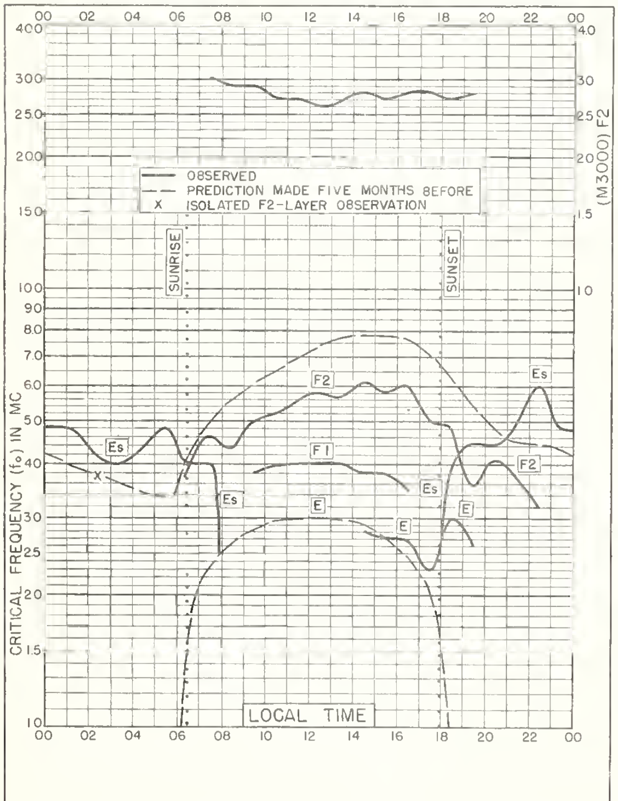


Fig. 67. FORT CHIMO, CANADA
58.1°N, 68.3°W MARCH 1951

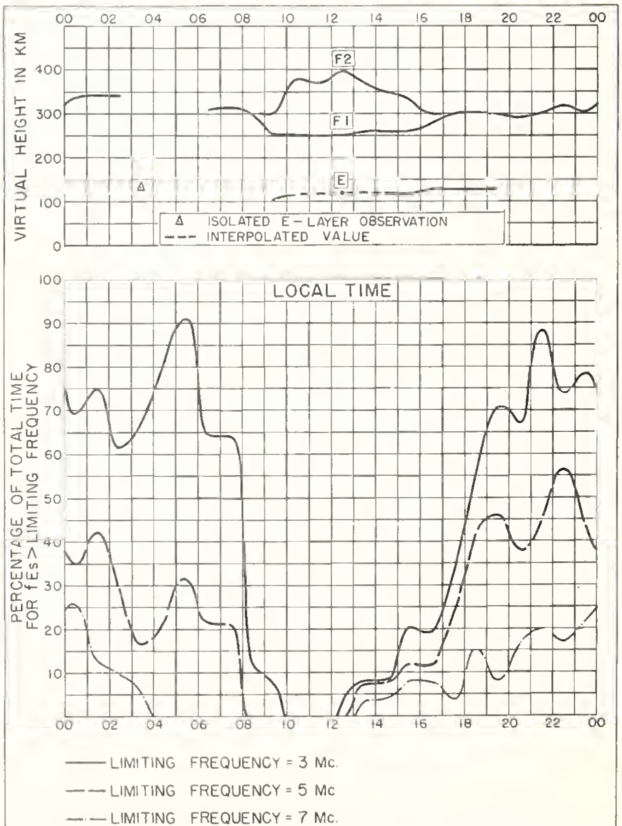


Fig. 68. FORT CHIMO, CANADA MARCH 1951

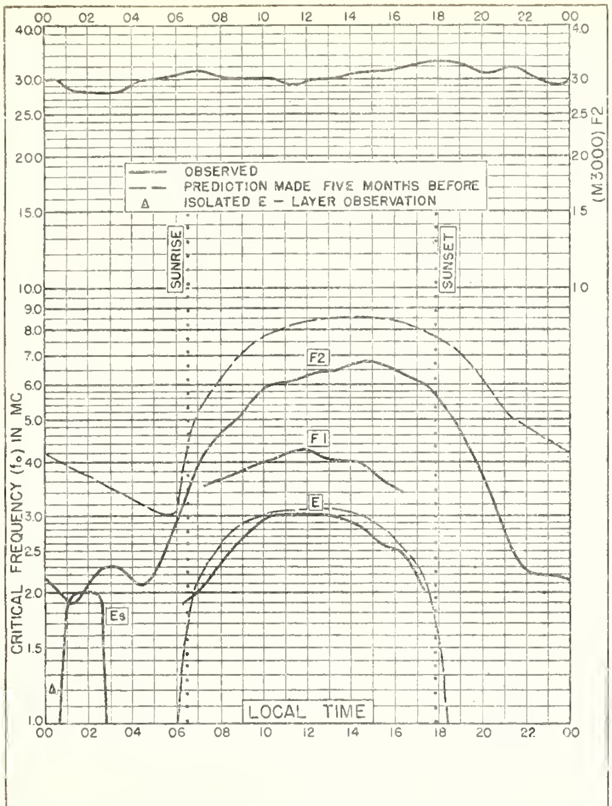


Fig. 69. PRINCE RUPERT, CANADA
54.3°N, 130.3°W MARCH 1951

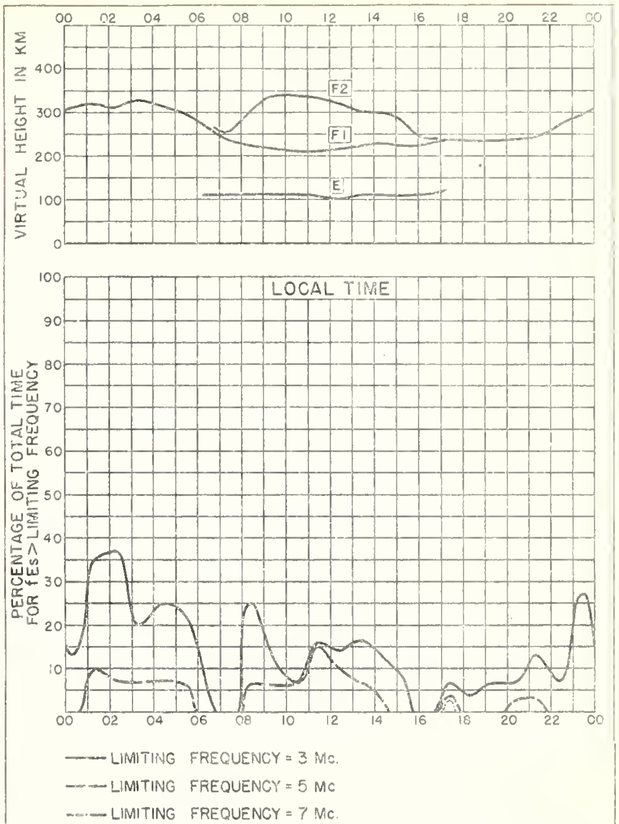


Fig. 70. PRINCE RUPERT, CANADA MARCH 1951

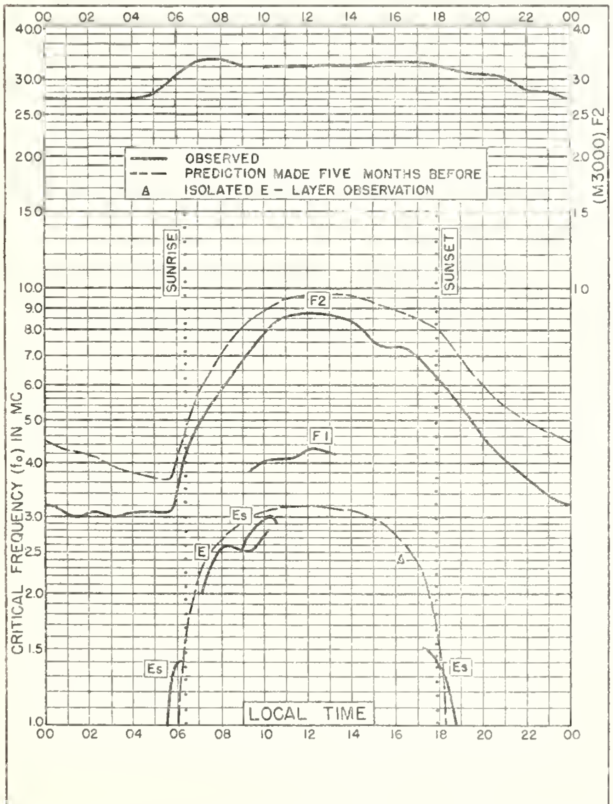


Fig. 71. ADAK, ALASKA
51.9°N, 176.6°W MARCH 1951

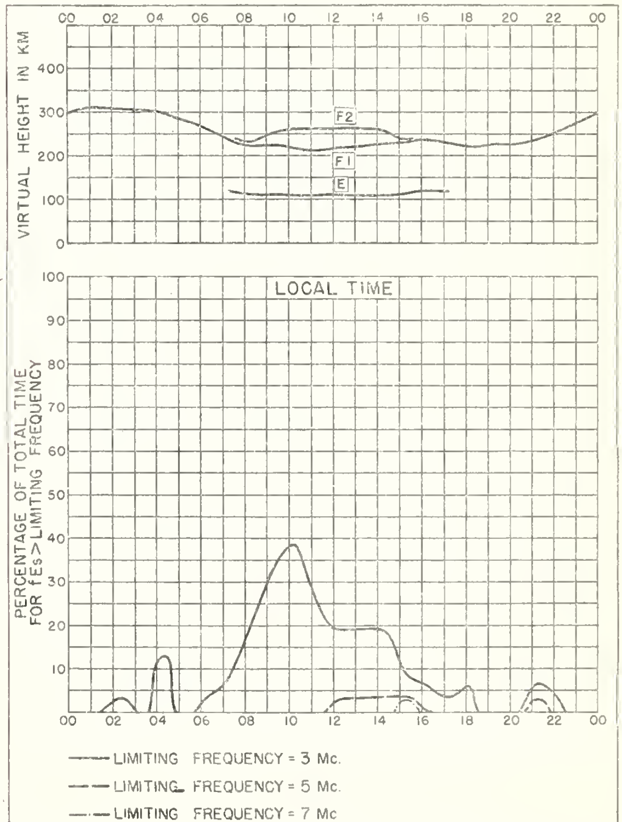


Fig. 72. ADAK, ALASKA MARCH 1951

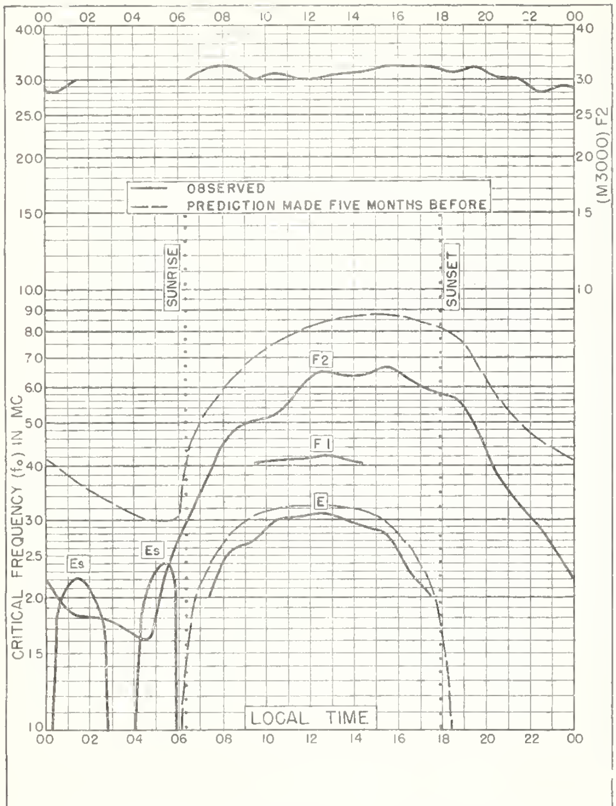


Fig. 73. PORTAGE la PRAIRIE, CANADA
49.9°N, 98.3°W MARCH 1951

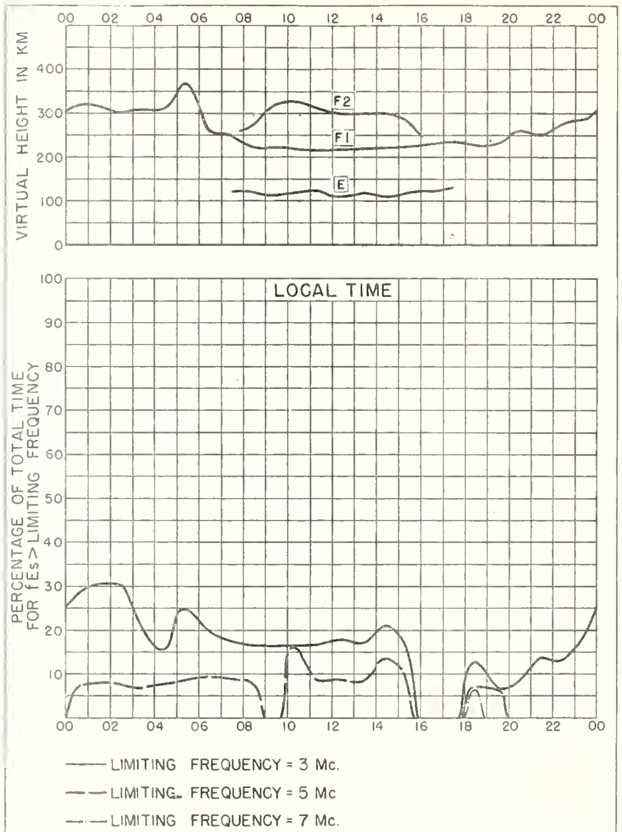


Fig. 74. PORTAGE la PRAIRIE, CANADA MARCH 1951

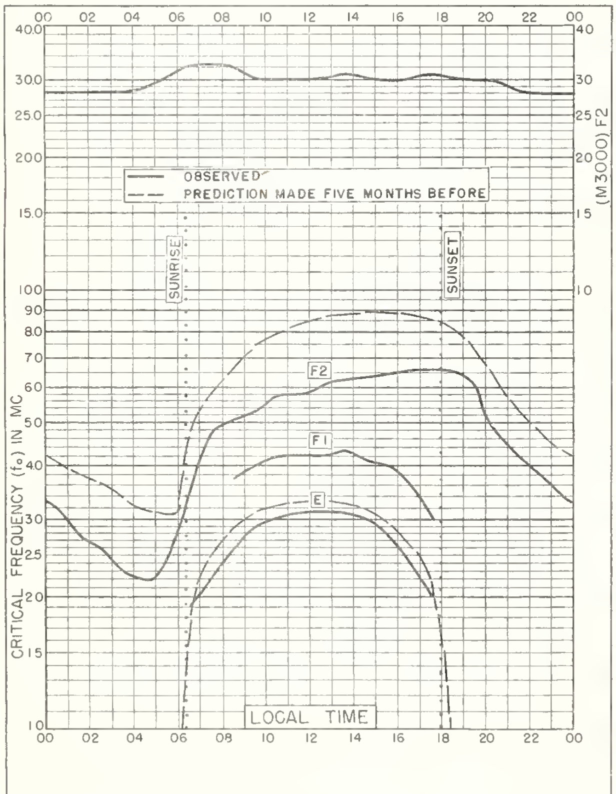


Fig. 75. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W MARCH 1951

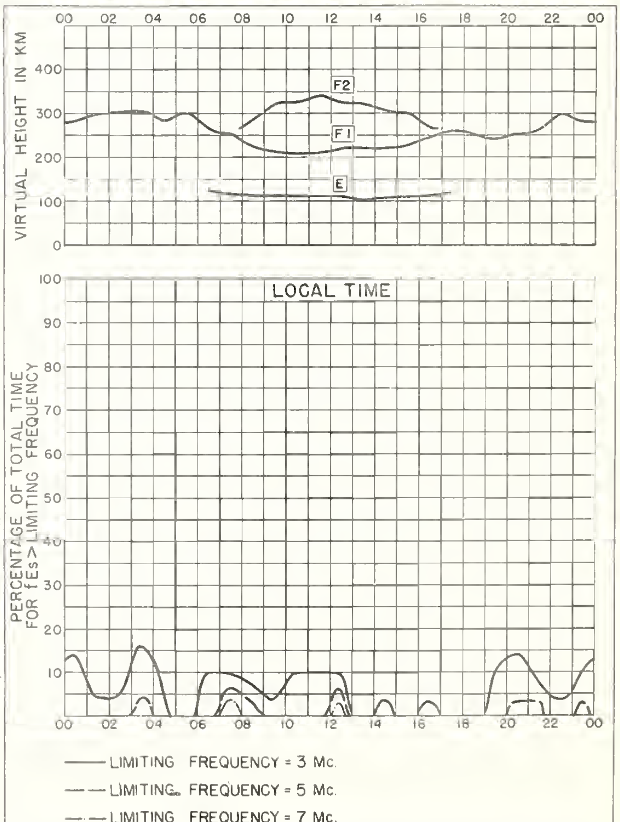


Fig. 76. ST. JOHN'S, NEWFOUNDLAND MARCH 1951

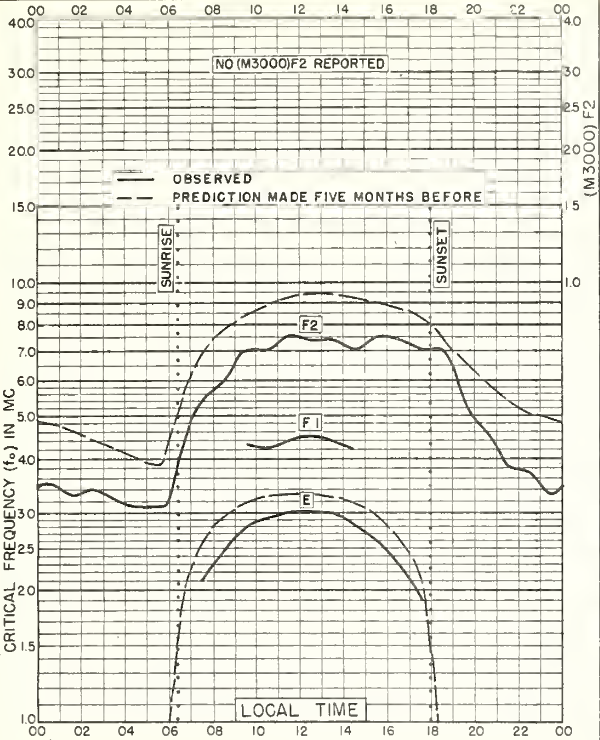


Fig. 77. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E MARCH 1951

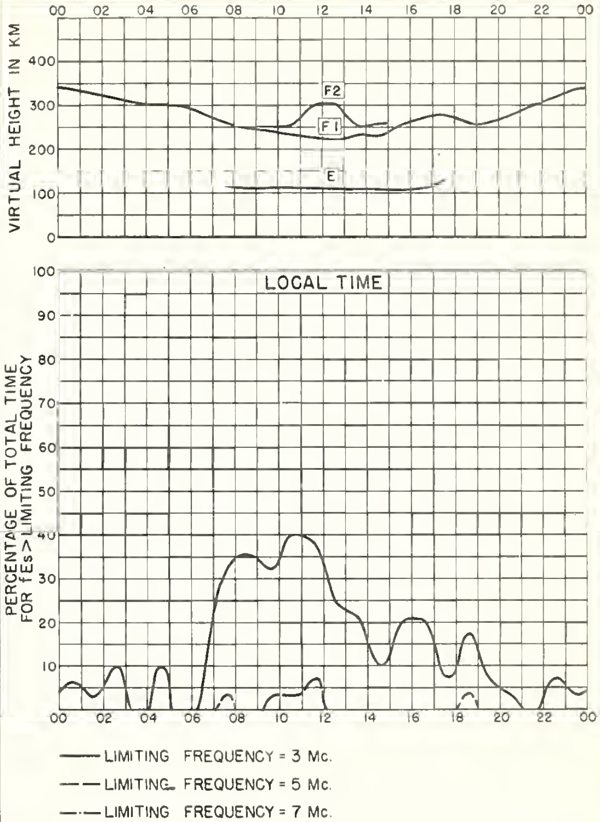


Fig. 78. SCHWARZENBURG, SWITZERLAND MARCH 1951

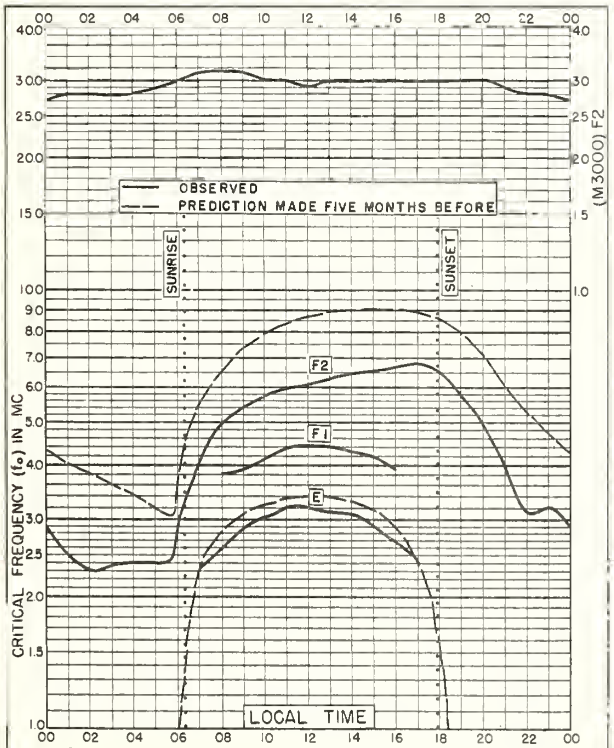
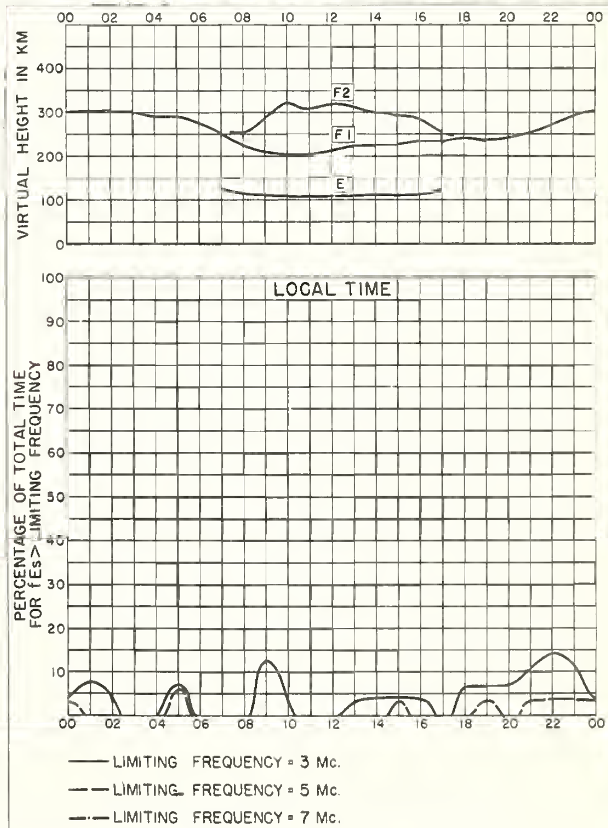


Fig. 79. OTTAWA, CANADA
45.4°N, 75.7°W MARCH 1951



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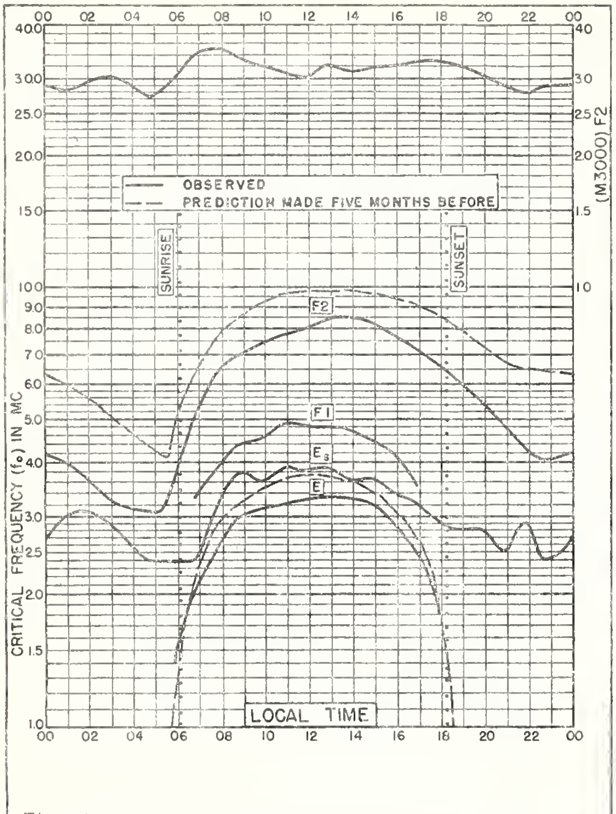


Fig. 81. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E MARCH 1951

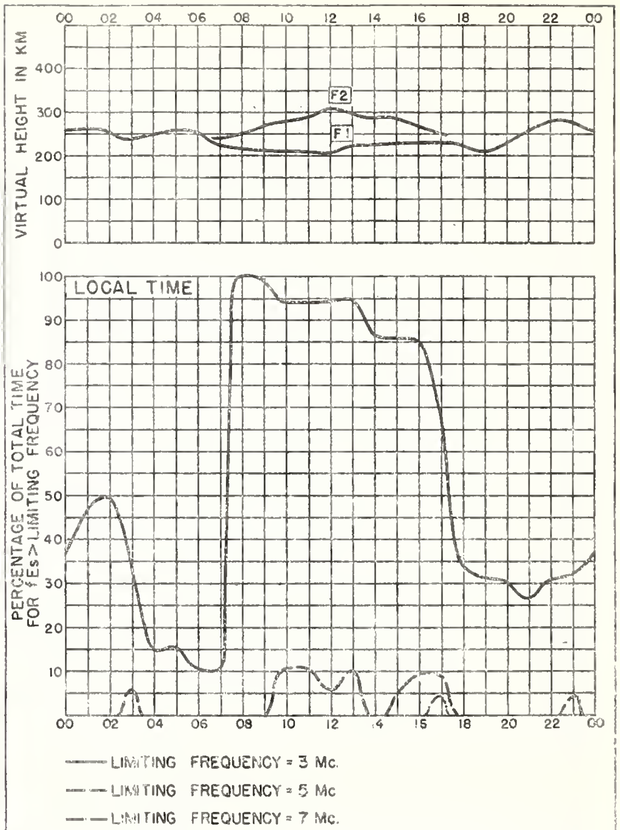
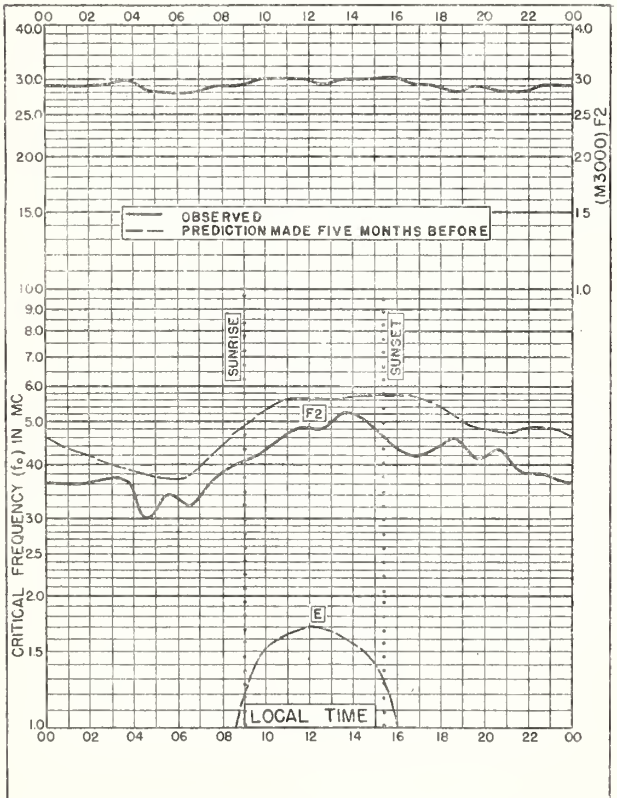


Fig. 82. WATHEROO, W. AUSTRALIA MARCH 1951



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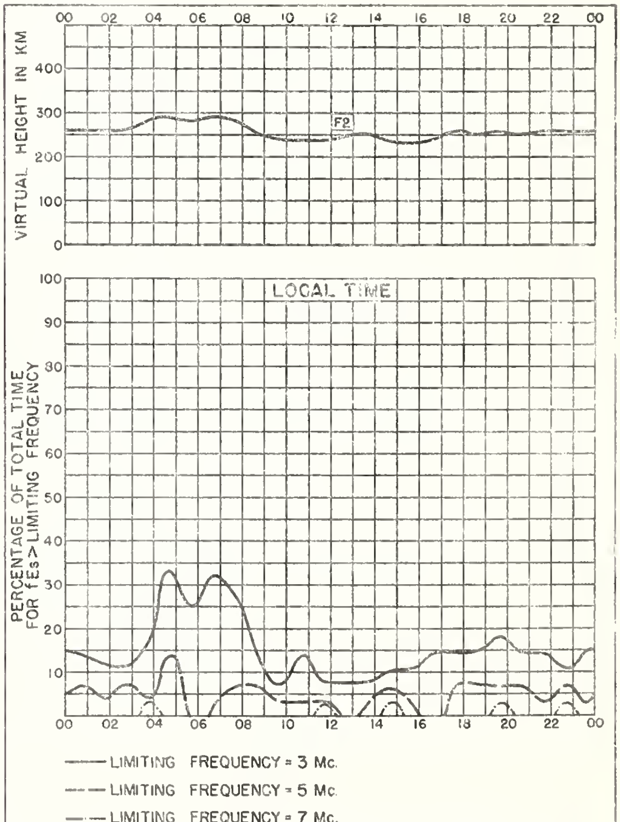
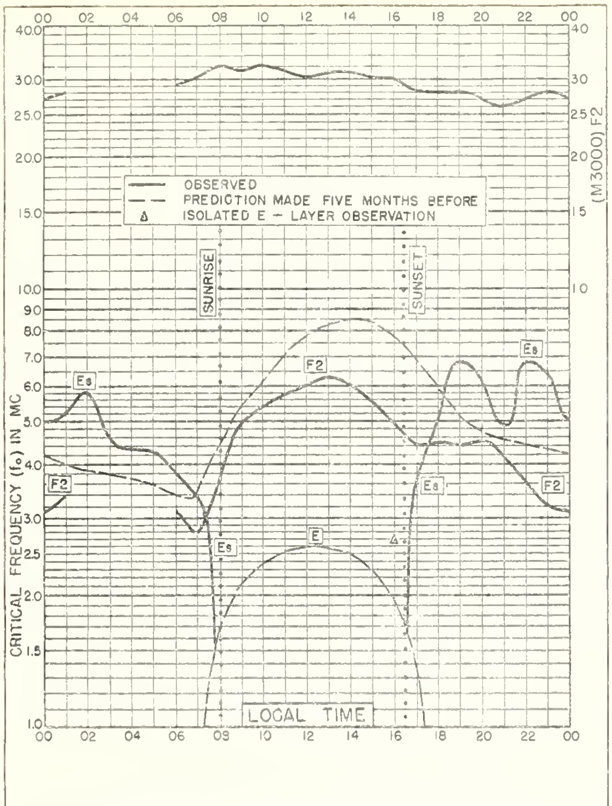


Fig. 84. RESOLUTE BAY, CANADA FEBRUARY 1951



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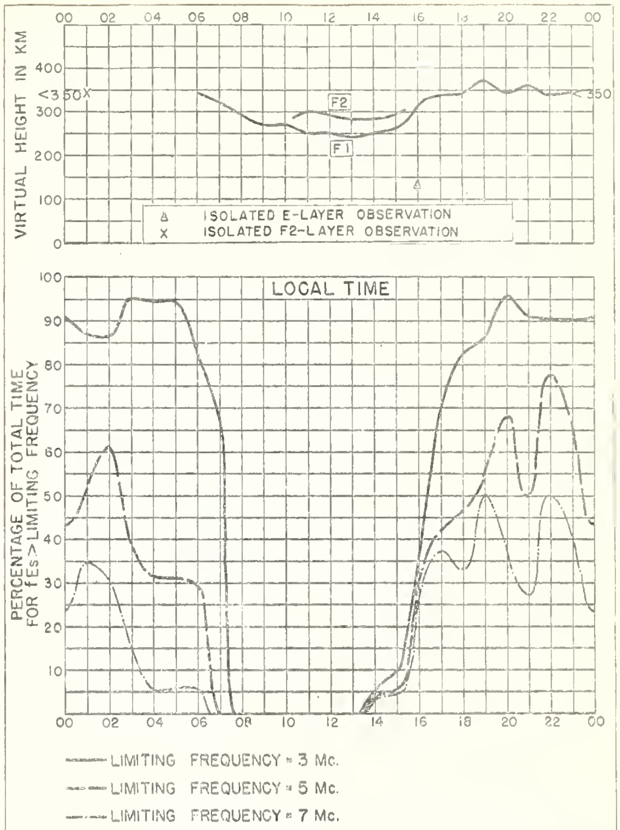

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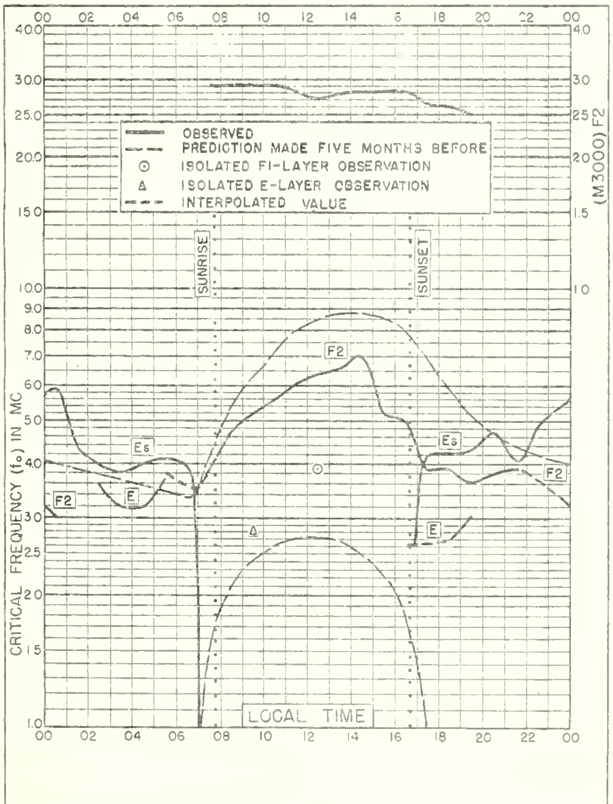

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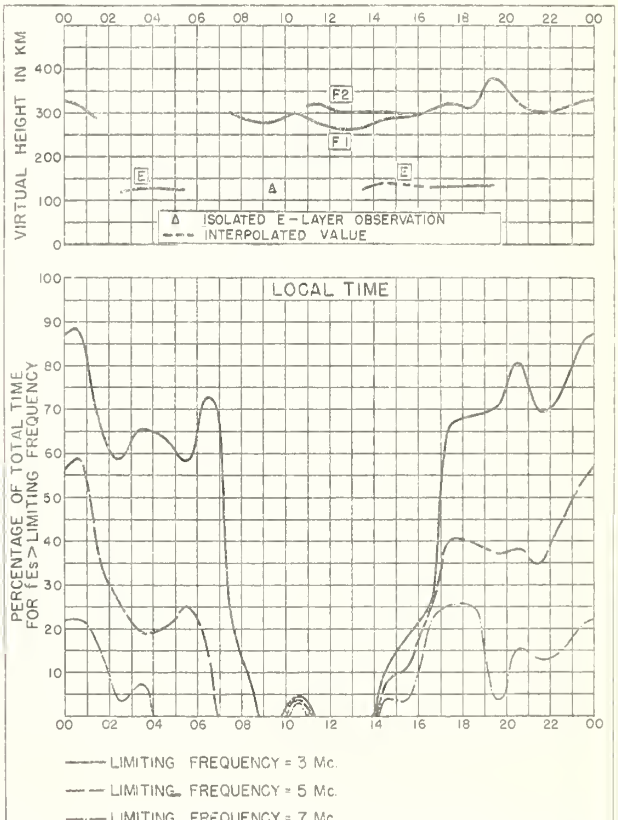

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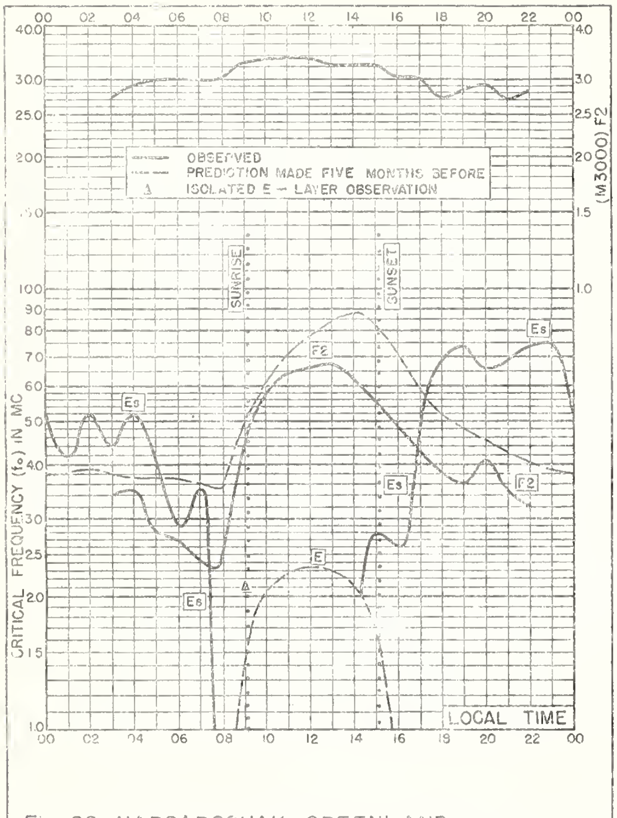

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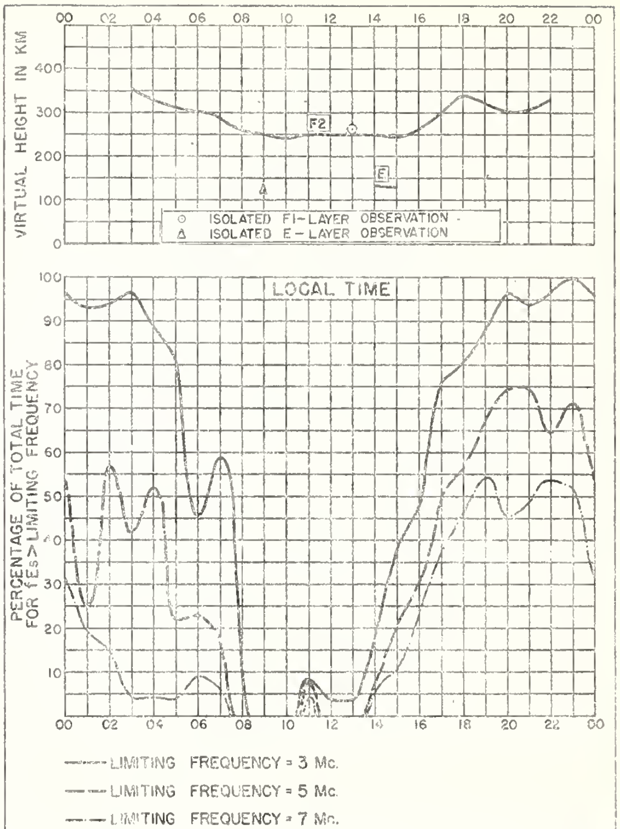

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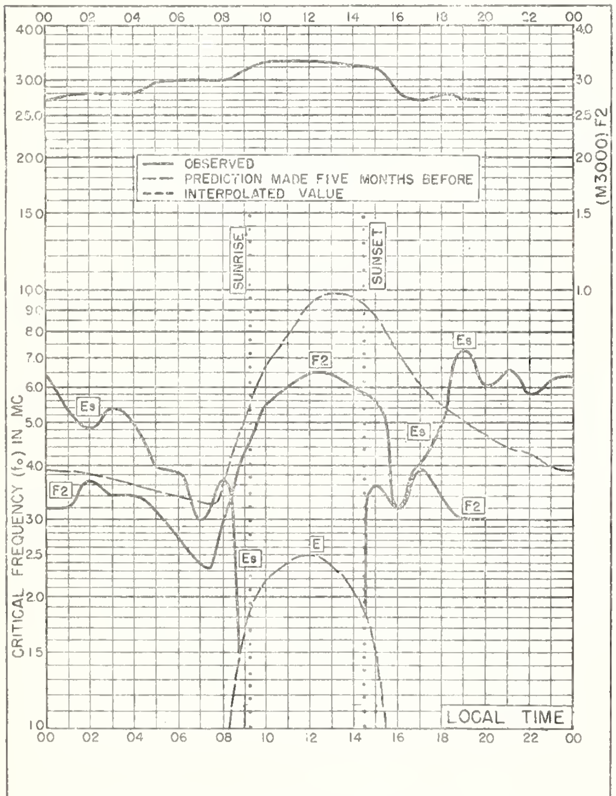

Fig. 91. NARSARSSUAK, GREENLAND
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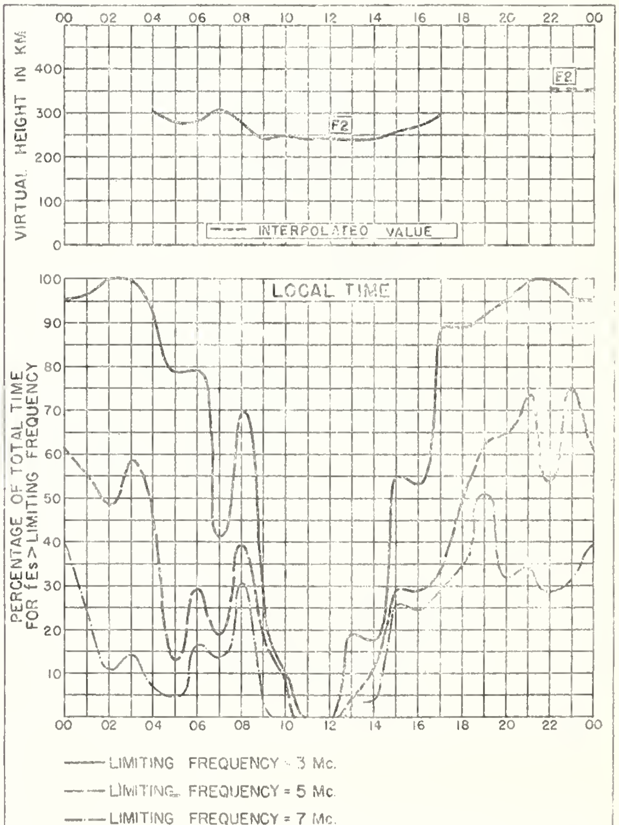

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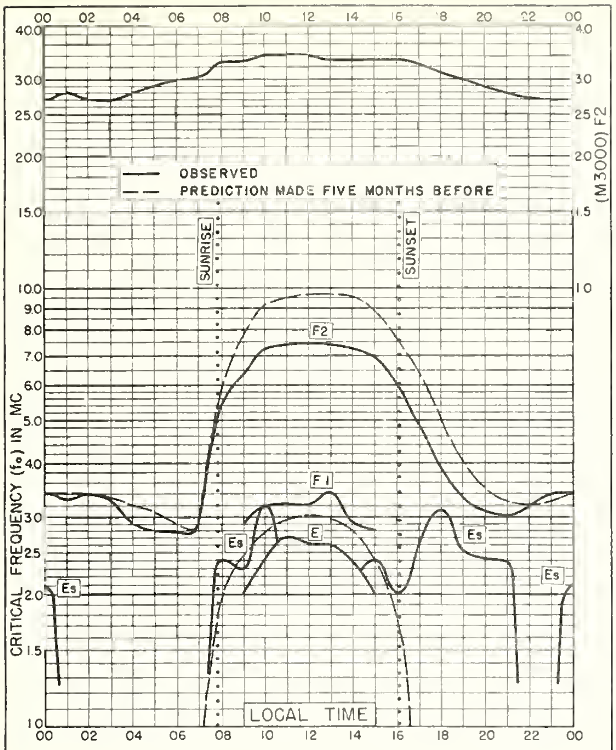

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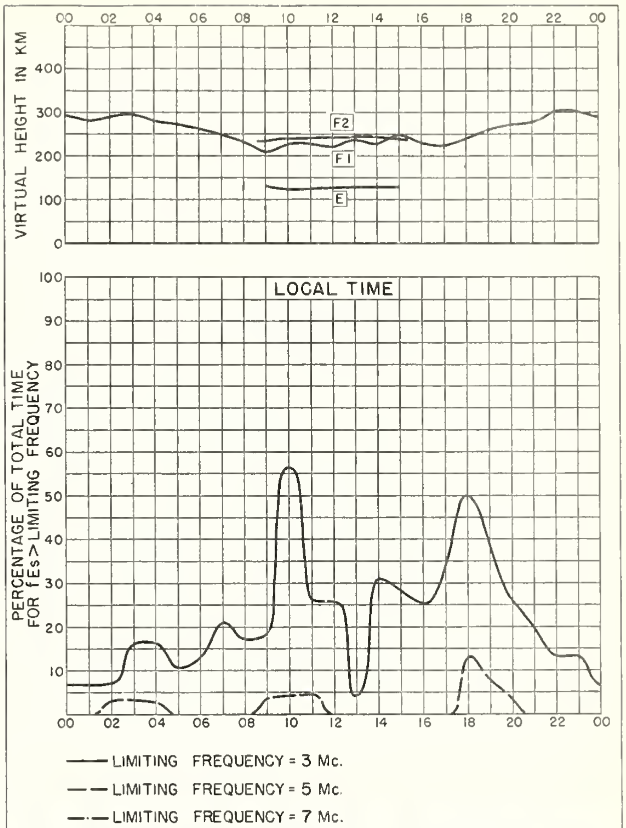

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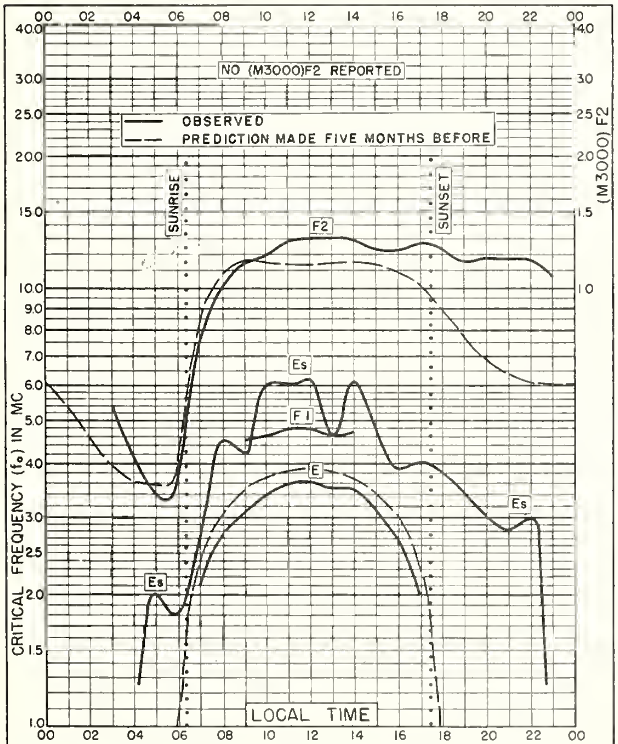

Fig. 95. DAKAR, FRENCH W. AFRICA
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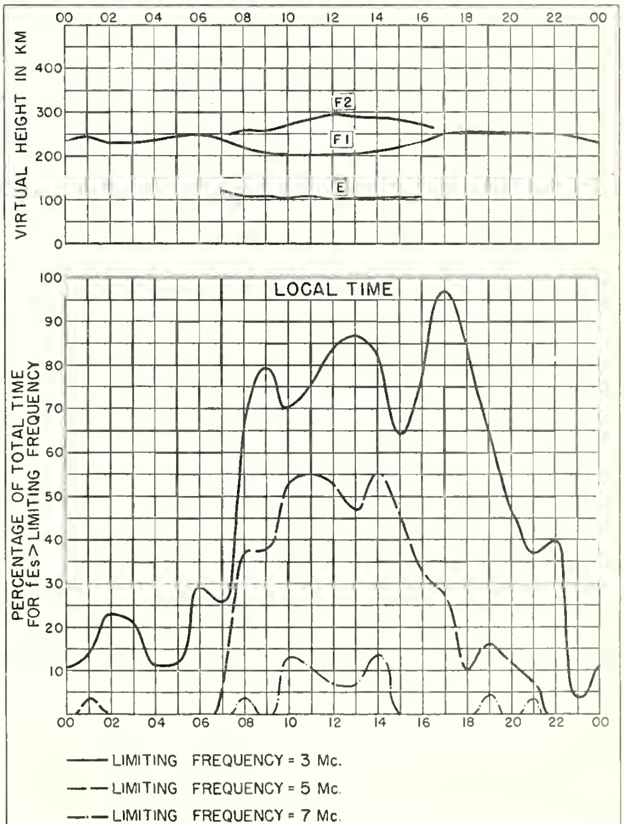

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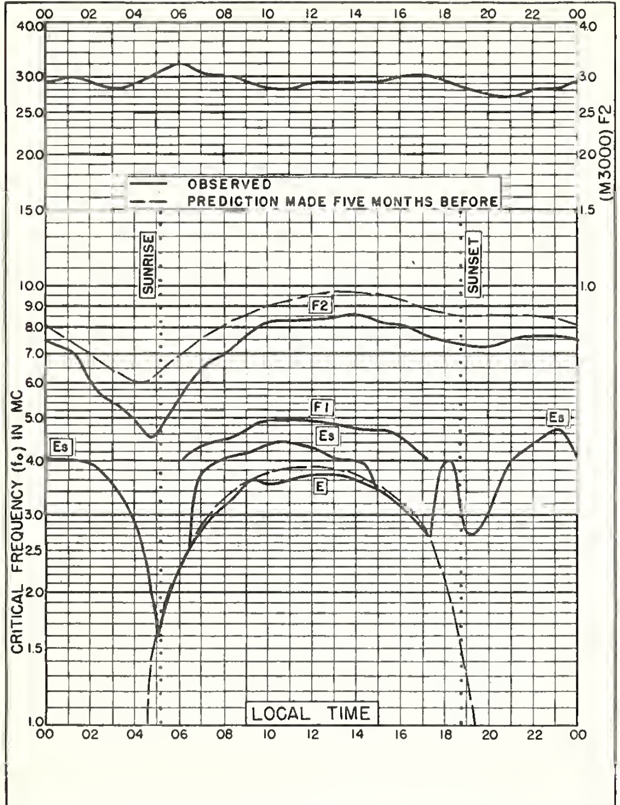

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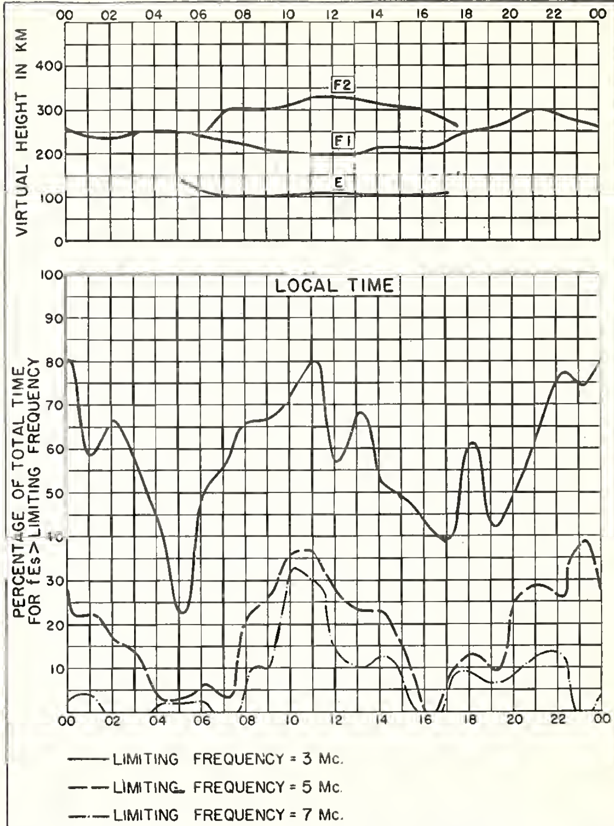

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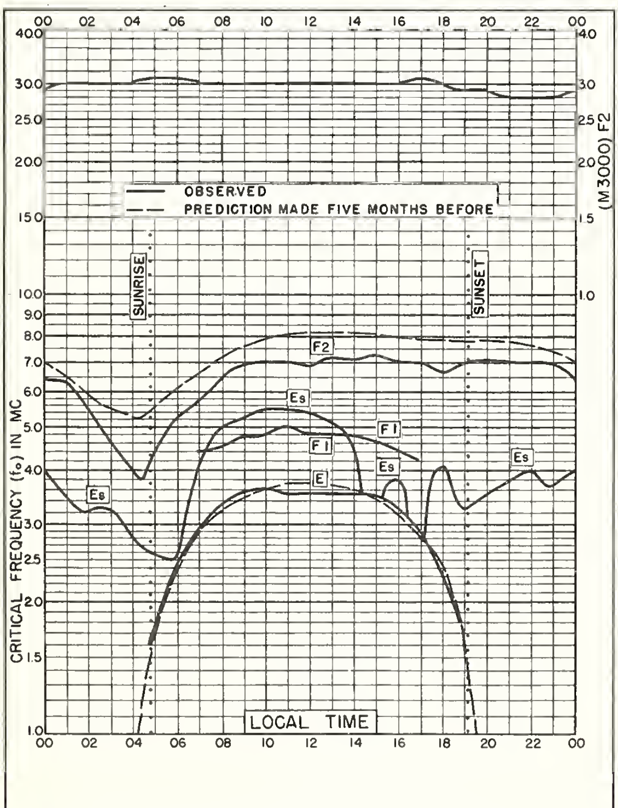

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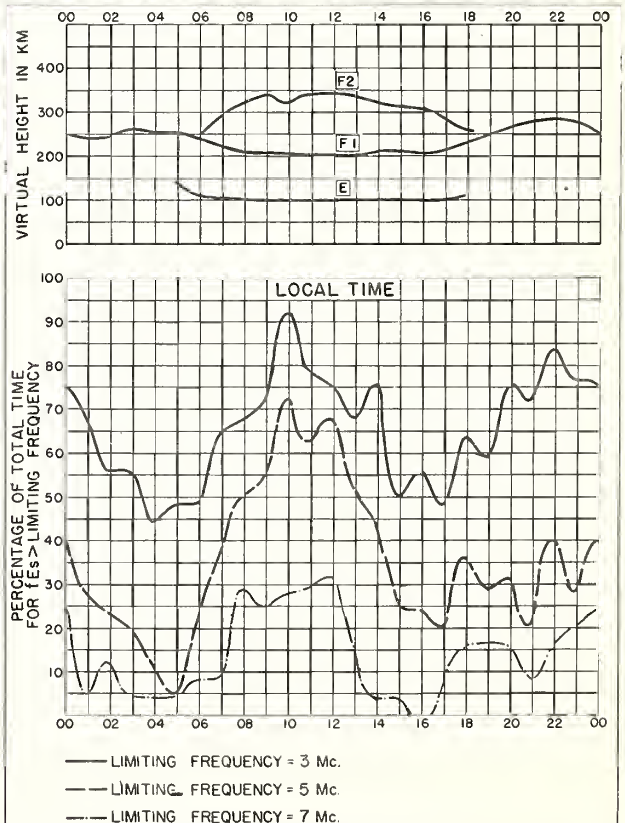

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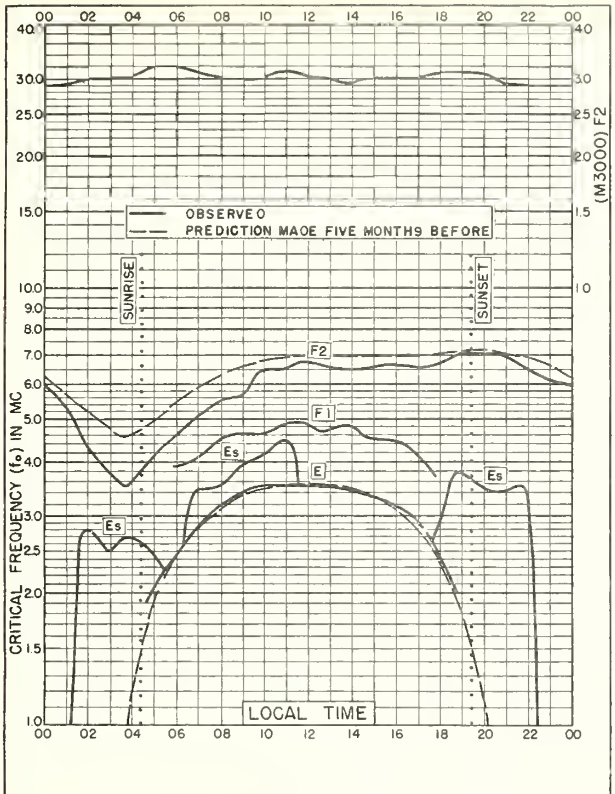

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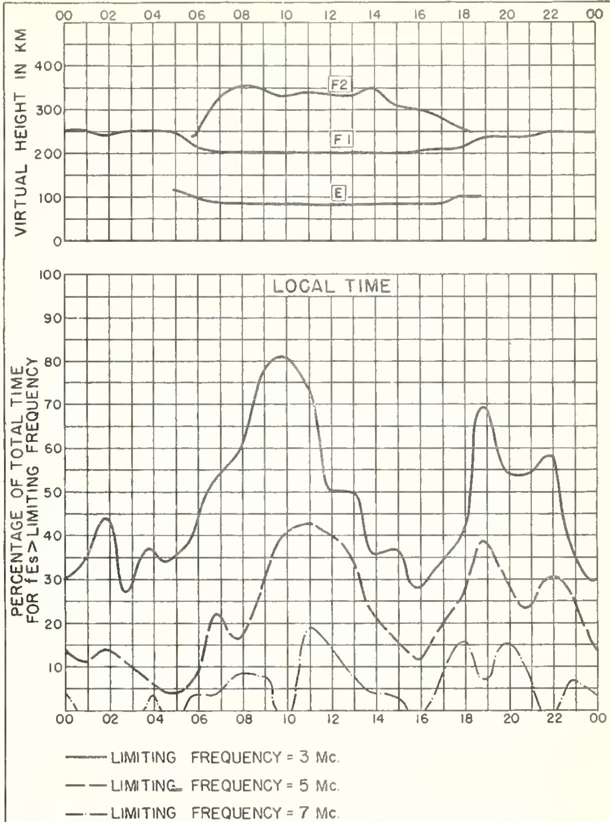

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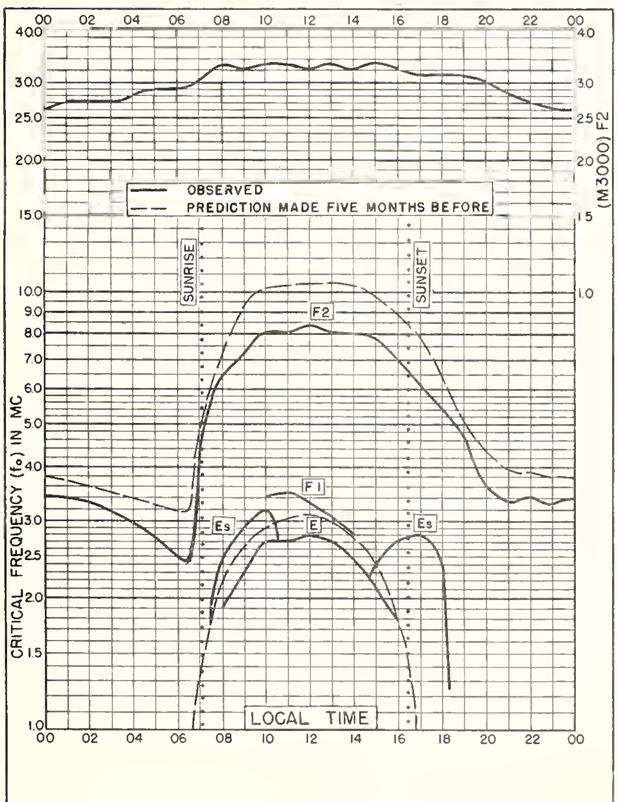

Fig. 103. FRIBOURG, GERMANY
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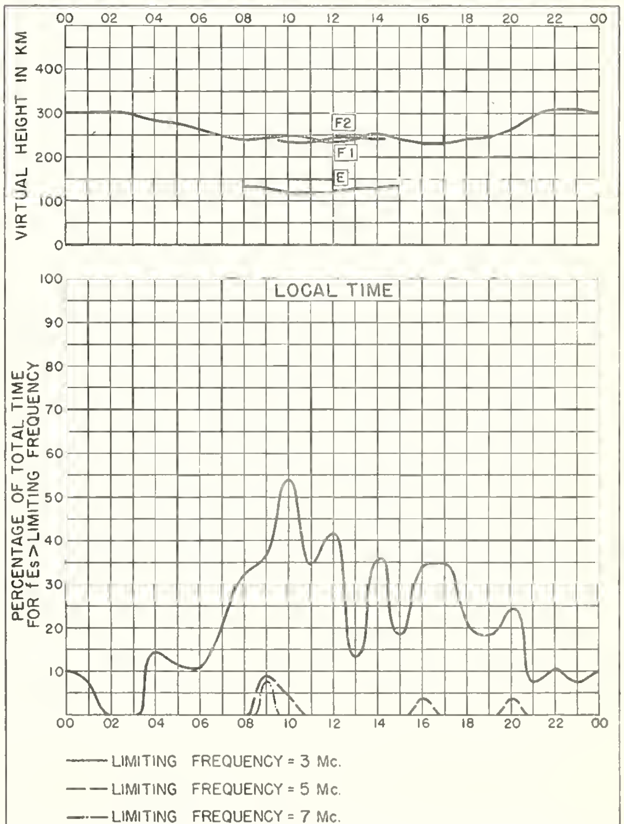

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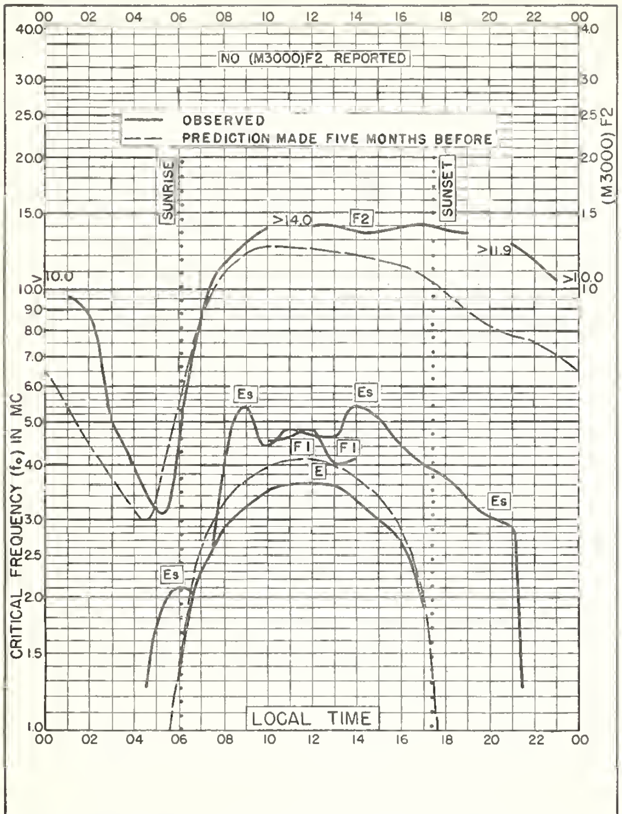

Fig. 105. DAKAR, FRENCH W. AFRICA
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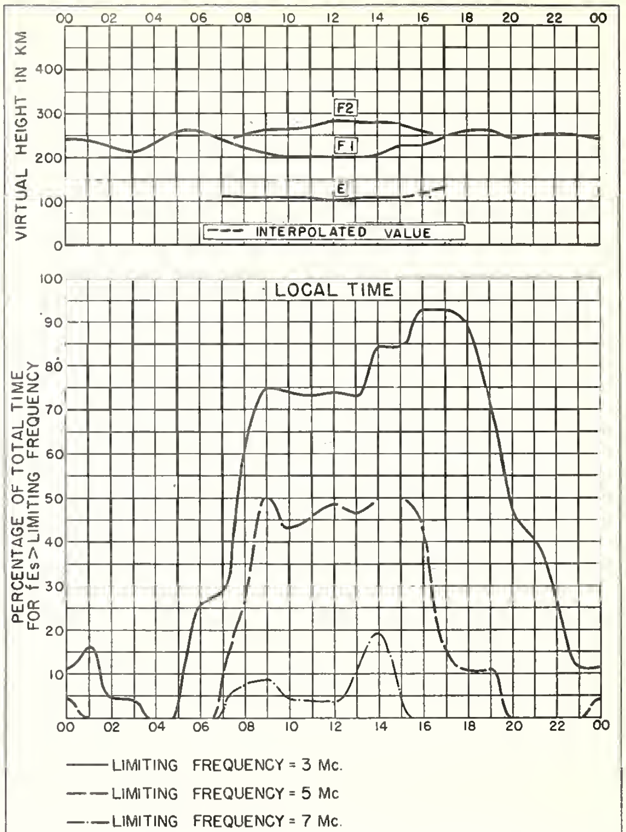
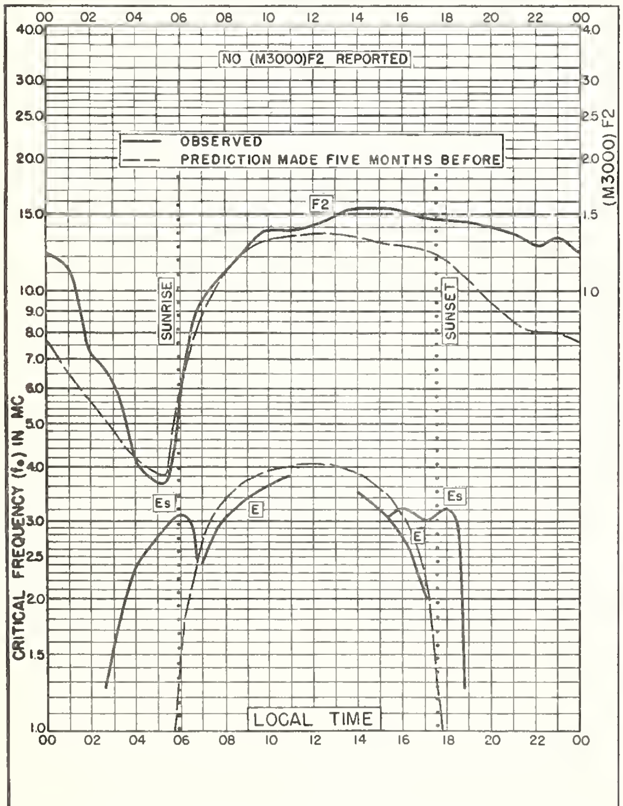


Fig. 106. DAKAR, FRENCH W. AFRICA NOVEMBER 1950



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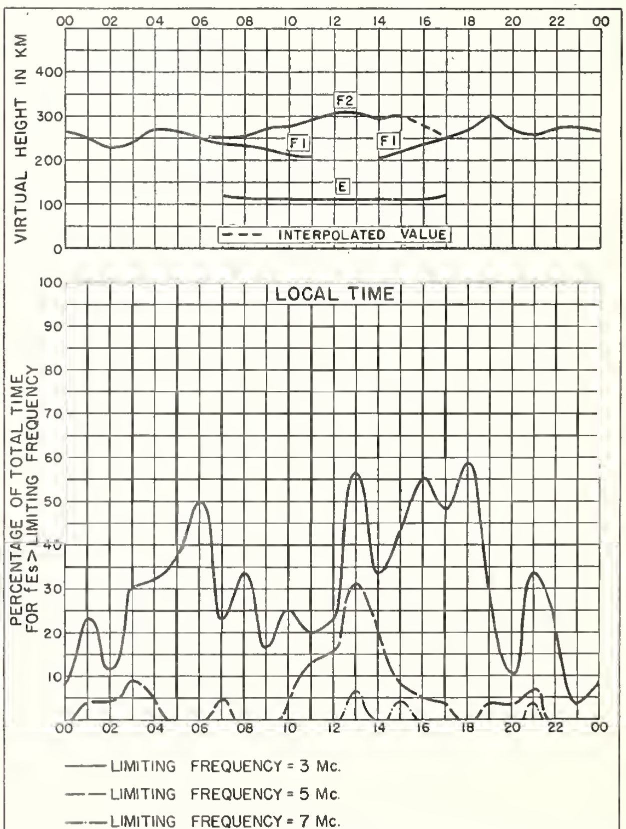

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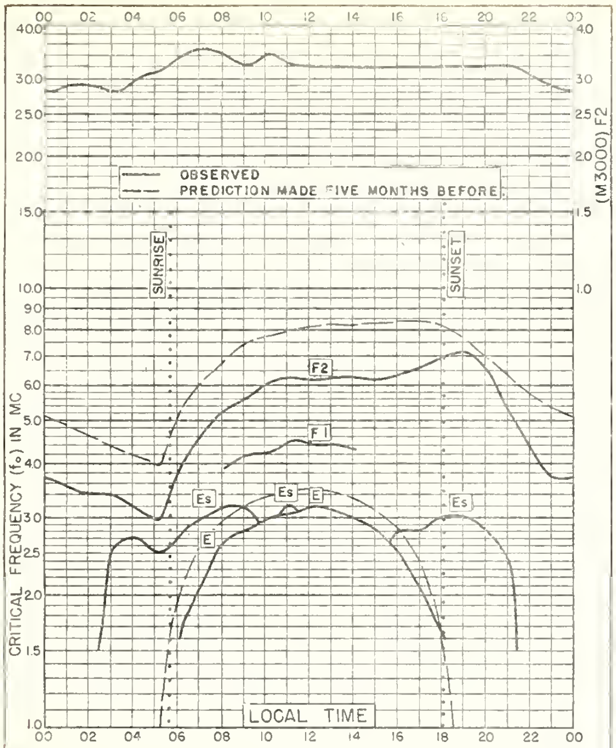

Fig. 109. DOMONT, FRANCE
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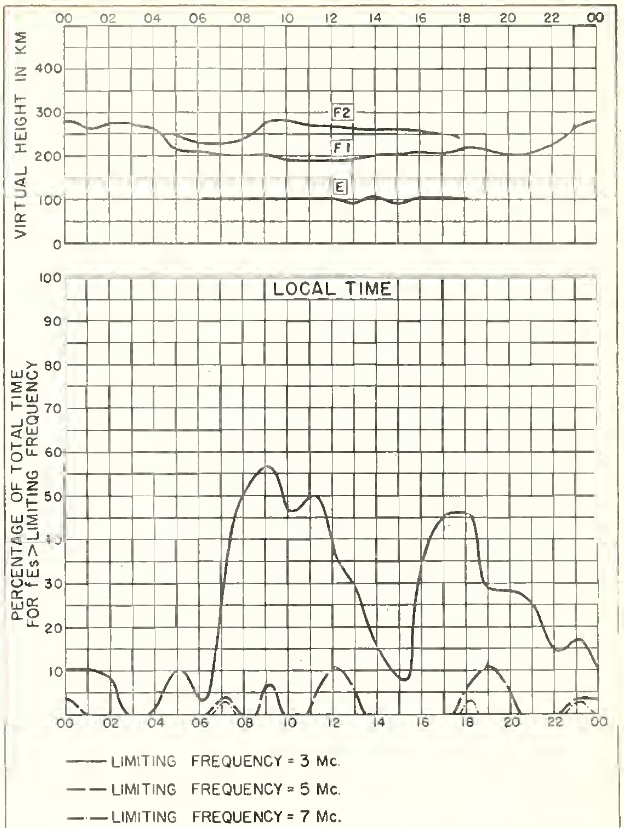

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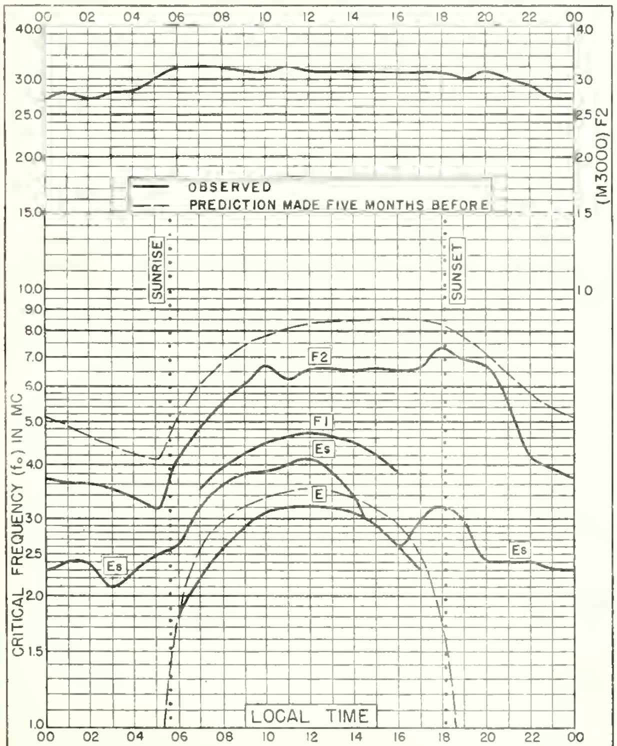

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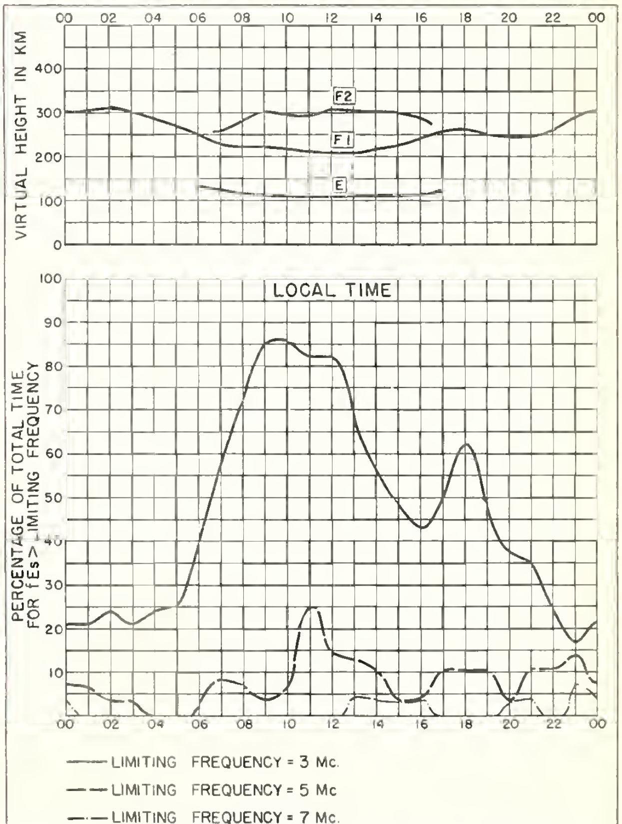

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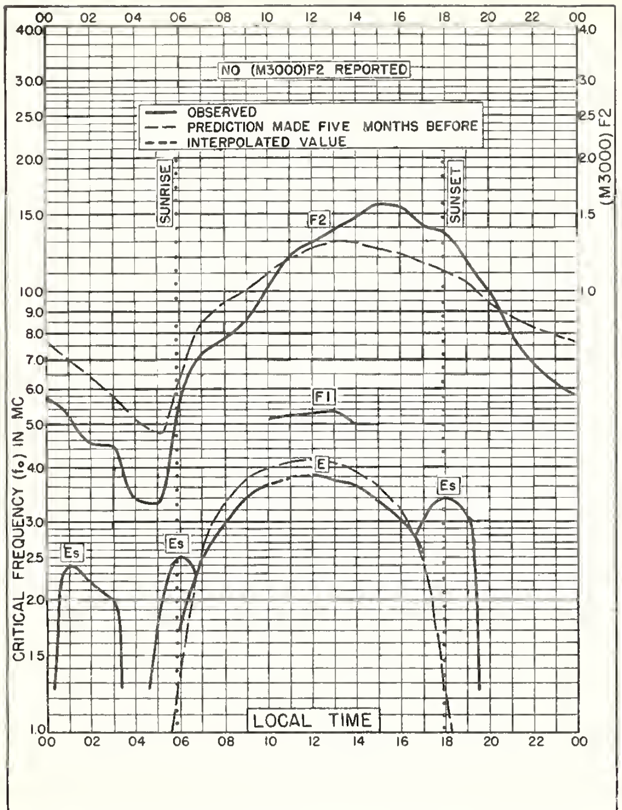

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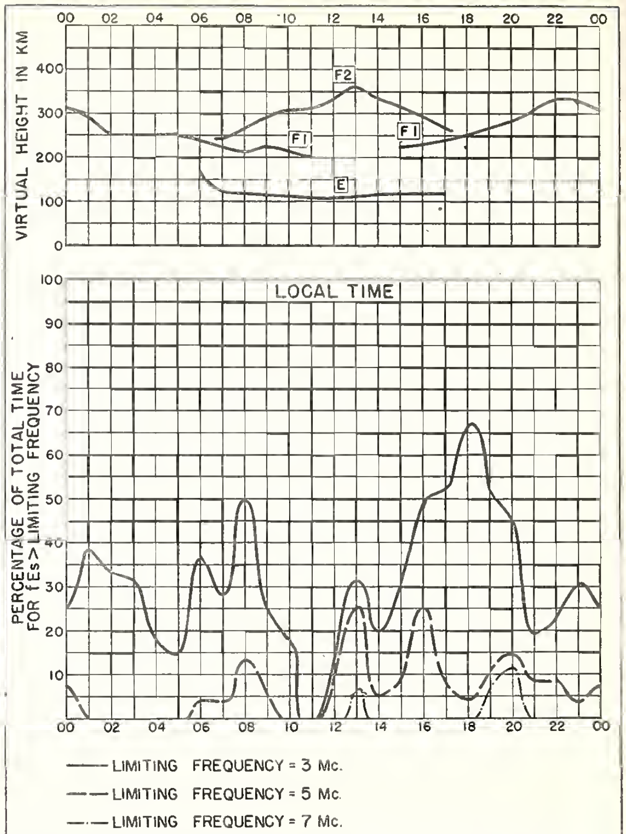

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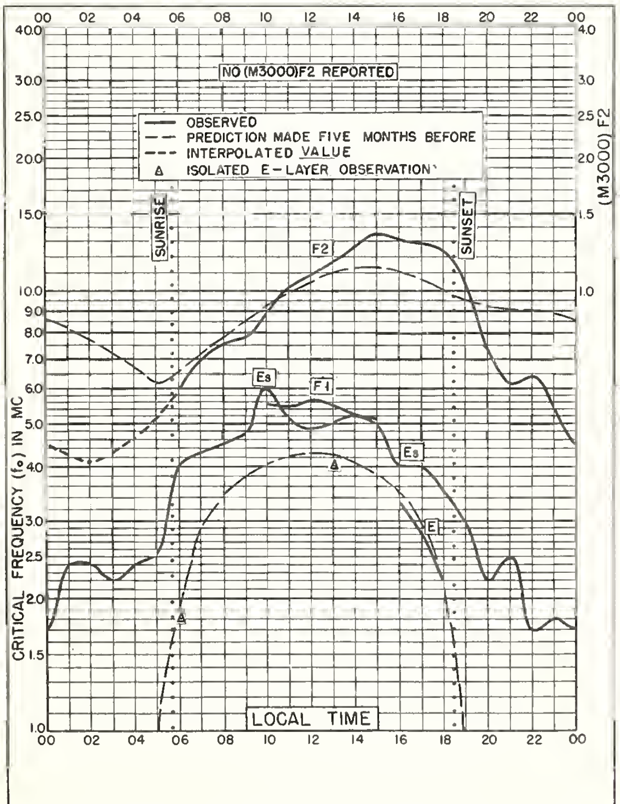

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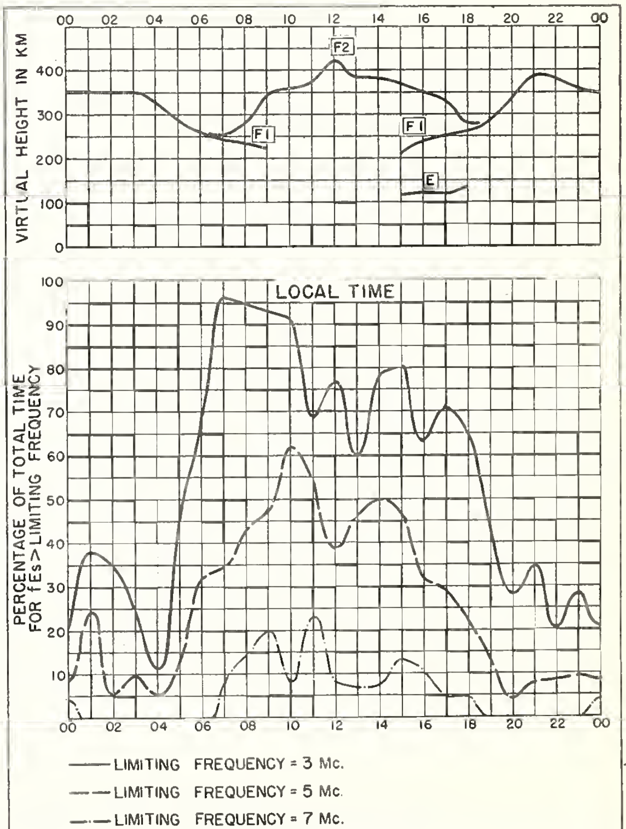

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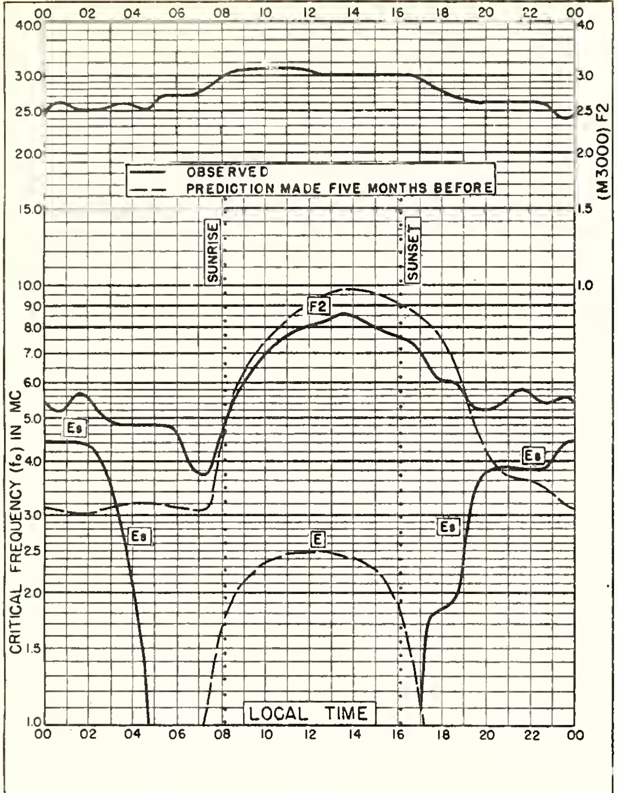

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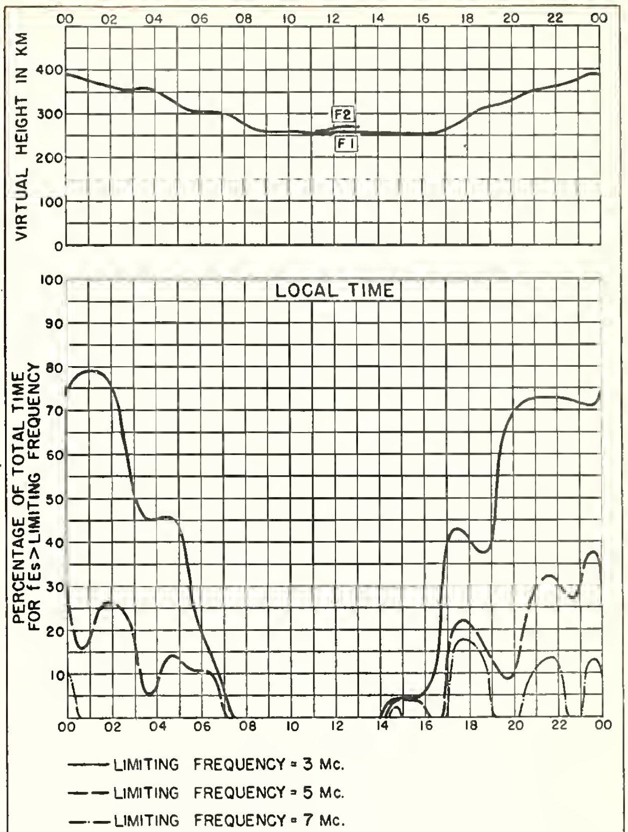

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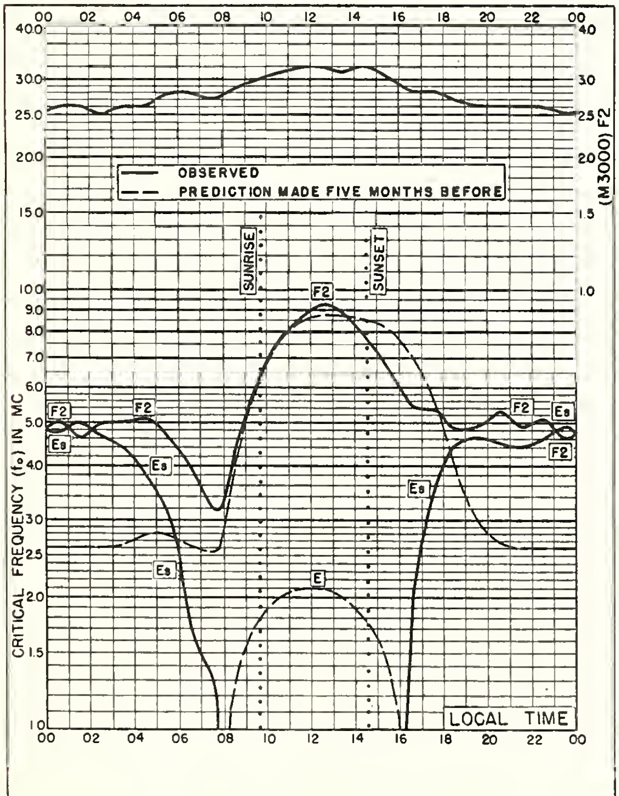

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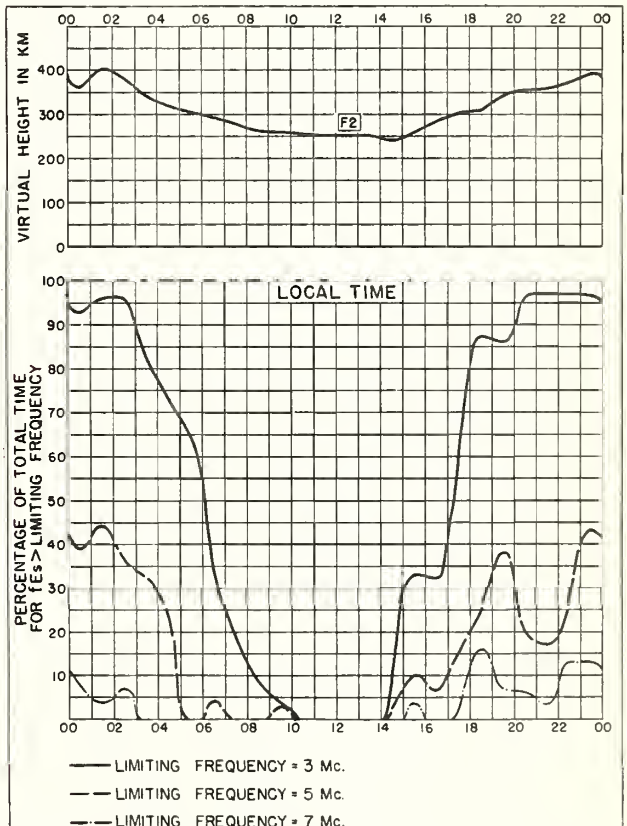

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CRPL and IRPL Reports

[A list of CRPL Section Reports is available from the Central Radio Propagation Laboratory upon request]

Daily:

Radio disturbance warnings, every half hour from broadcast station WWV of the National Bureau of Standards.
Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

Weekly:

CRPL–J. Radio Propagation Forecast (of days most likely to be disturbed during following month).

Semimonthly:

CRPL–Ja. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.

Monthly:

CRPL–D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11–499–, monthly supplements to TM 11–499; Dept. of the Navy, DNC 13( ) series.)
CRPL–F. Ionospheric Data.
*IRPL–A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.
*IRPL–H. Frequency Guide for Operating Personnel.

Circulars of the National Bureau of Standards:

NBS Circular 462. Ionospheric Radio Propagation.
NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions.

Reports issued in past:

IRPL–C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.
IRPL–G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.
IRPL–R. Nonscheduled reports:
R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.
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**R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
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**R11. A Nomographic Method for both Prediction and Observation Correlation of Ionosphere Characteristics.
**R12. Short Time Variations in Ionospheric Characteristics.
R14. A Graphical Method for Calculating Ground Reflection Coefficients.
**R15. Predicted Limits for F2-Layer Radio Transmission Throughout the Solar Cycle.
**R17. Japanese Ionospheric Data—1943.
R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.
**R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)
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T2. Radar coverage and weather. (Superseded by JANP 102.)
CRPL–T3. Tropospheric Propagation and Radio-Meteorology. (Reissue of Columbia Wave Propagation Group WPG–5.)

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